

**STORMWATER MANAGEMENT STUDY
FOR
PARADISE VALLEY CLUB**

**GROVE/WINCH STREET
FRAMINGHAM, MASSACHUSETTS**

Prepared for:

Benchmark Engineering Corp.
120 Quarry Drive
Milford, Massachusetts 01757

Prepared by:

Oak Consulting Group
P.O. Box 1123
Newburyport, Massachusetts 01950
(978) 312.3120

Project 13005
November 2015

Revised September 2016

TABLE OF CONTENTS

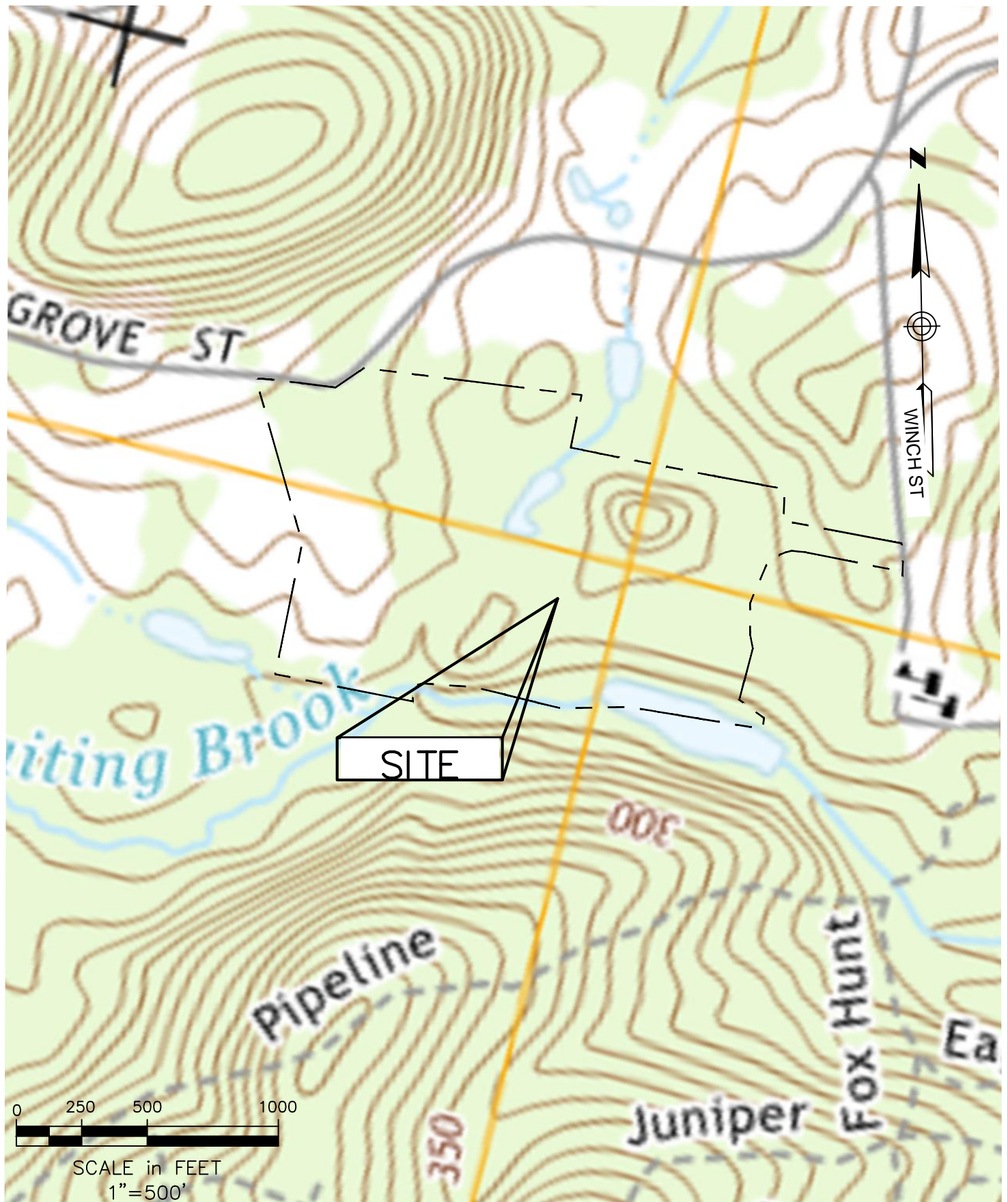
1.0	INTRODUCTION.....	1
1.1	Existing Conditions.....	1
1.2	Site Geology and Hydrogeology.....	1
1.3	Proposed Conditions	2
1.4	Methodology	2
2.0	STORMWATER MANAGEMENT STANDARDS	3
2.1	No New Untreated Discharges (Standard 1).....	3
2.2	Peak Rate Attenuation (Standard 2).....	3
2.3	Groundwater Recharge (Standard 3)	4
2.4	Water Quality (Standard 4).....	5
2.5	Land Use with Higher Potential Pollutant Loads (LUHPPLs) (Standard 5)	5
2.6	Critical Areas (Standard 6)	5
2.7	Redevelopments and Other Projects Subject to the Standards Only to the Maximum Extent Practicable (Standard 7)	5
2.8	Construction-Period Pollution Prevention and Erosion and Sedimentation Control (Standard 8).....	5
2.9	Operation and Maintenance Plan (Standard 9)	6

FIGURES

Figure 1:	USGS Site Location Sketch
DR-001:	Pre-Development Watershed Plan (Appendix A)
DR-002:	Post-Development Watershed Plan (Appendix B)

APPENDICES:

Appendix A:	Pre-Development Watershed Plan and Drainage Calculations
Appendix B:	Post-Development Watershed Plans and Drainage Calculations
Appendix C:	Stormwater Checklist and Sizing Calculations
Appendix D:	Pollution Prevention and Stormwater Operation and Maintenance Plan
Appendix E:	Soils Information



Paradise Valley Club

Grove Street
Framingham, Massachusetts

OCG

Oak Consulting Group
P.O. Box 1123
Newburyport, MA 01950
Ph. 978.312.3120

SITE LOCATION USGS MAP

DRAWN BY:
SPM

SCALE:
AS NOTED

CHECKED BY:
SPM

DATE:
11/2/15

FIGURE NO.

1

1.0 INTRODUCTION

Oak Consulting Group has prepared the following Stormwater Management Study for the proposed Paradise Valley Club development. The objective of this study was to engineer a drainage design using Best Management Practices (BMPs) that meet the Stormwater Management Standards set forth in the Massachusetts Department of Environmental Protection's (MA DEP's) Stormwater Policy and standard engineering practice.

The Project Area is located on a residential property also historically used as a horse farm, with access from Grove Street. The site is bounded by Grove Street to the north, Baiting Brook to the west, Winch Street to the south, and residential property to the east. The project consists of an Open Space Preservation Development with a new residential condominium with associated drives, utility, landscape, and drainage improvements.

The total area of disturbance is approximately 14.0 acres. Portions of the proposed work area are within buffers to wetlands resource areas subject to protection under the Wetlands Protection Act and the local bylaw. The project has been designed to minimize and mitigate disturbance in these buffers and to help protect the abutting resource areas.

1.1 Existing Conditions

The site of the proposed project is a +/-49.45-acre parcel situated between Grove Street and Winch Street on a residential property historically used as a horse farm. The site has a man-made pond near the center of the site and bordering vegetated wetlands in the southern portion of the site and along the eastern boundary adjacent to Baiting Brook. Portions of the site are subject to protection by the 200-foot Riverfront Area buffer to Baiting Brook.

The northern portions of the site are developed with a residential dwelling, several accessory use buildings, supporting driveways, parking areas and other miscellaneous site improvements. A majority of remainder of the site is in a natural state with several grassed pasture areas and a gravel road cutting through the site from north to south. The site is sloped generally to the southeast and southwest with a hydraulic break line bisecting the site. Areas which are not developed with impervious surfaces are generally comprised of grassed areas and woods.

The site characterized by two watershed areas. Stormwater from the western portion of the site (Subcatchment 1 and 4) flows to the southwest and is collected in the Baiting Brook and an existing pond to the south. Stormwater from the eastern portion of the site (Subcatchments 2 and 3) flows to the southeast and is collected by the man-made pond on the site and wetlands along the eastern property boundary.

1.2 Site Geology and Hydrogeology

The NRCS has documented the site as having a wide range of soils types from Merrimac Fine Sandy Loam with a Hydrologic Soil Group (HSG) A designation to Whitman Fine Sandy Loam and Hollis-Rock outcrop with a HSG D designation. The NRCS delineation of the soils was digitized onto the site survey so the soil group for each ground coverage area within a subcatchment will correspond with the published soils data and is shown on the enclosed sheets watershed plans. A copy of the NCRS soils map and HSG's is enclosed in Appendix E.

1.3 Proposed Conditions

The project proposes construction of 39 single family homes along with approximately 2,300 linear feet of road, new driveways, utilities and drainage infrastructure. The drainage system has been designed to manage stormwater and mitigate the impacts of development to runoff from the site.

The proposed drainage design uses both closed drainage and LID style country drainage to convey stormwater. To mitigate increases in runoff, site drainage will be detained and infiltrated through surface basins as well as subsurface systems. The runoff from the proposed houses will be directed to subsurface infiltration chambers which have been size to retain up to the 100-year storm event. Infiltration of stormwater will effectively mimic the pre-development drainage condition by helping to control the rate and volume of runoff from the site and recharging runoff generated by new impervious areas to the ground.

Stormwater treatment is provided primarily through the use pre-treatment devises such as deep sump catch basins and grassed swales prior to directing runoff to detention/infiltration basins spread throughout the project area. These stormwater treatment areas are designed to capture, retain and treat at least the prescribed treatment volume of a half inch of runoff from impervious areas, known as the “first flush.” Additional treatment is provided by Stormceptor treatment units to ensure all stormwater generated by the roadway areas are treated prior to discharge.

1.4 Methodology

Drainage conditions of the project area were analyzed in both the pre-development and post-development condition using the computer program HydroCAD. This program utilized the SCS TR-20 drainage model to generate estimated peak rates of runoff for the Subcatchment areas modeled. The pre-development analysis divided the site into four sub-catchments based on the locations of drainage discharges from the site. In the post-development analysis these subcatchment areas were broken down to several smaller subcatchment areas to analyze the proposed BMP's for the project, while keeping the same points of discharge used in the Pre-development analysis. The Pre-Development Subcatchment Plans and Post-Development Subcatchment Plans depicting the sub-areas analyzed can be found in Appendices A and B, respectively.

2.0 STORMWATER MANAGEMENT STANDARDS

The plans included with this drainage study present the existing and proposed storm drain systems and erosion control measures proposed for the project. The stormwater BMPs were designed to meet and exceed the performance standards of the Stormwater Policy. The measures taken to address each of the standards are presented below.

2.1 No New Untreated Discharges (Standard 1)

The proposed project will not result in new untreated discharges. Runoff from the proposed project area and new impervious areas will be captured, treated to remove total suspended solids (TSS), and infiltrated on site. Treated runoff not infiltrated on site will be discharged at a rate not to exceed and at approximately the same location as the pre-development condition.

2.2 Peak Rate Attenuation (Standard 2)

The Post-development rate and volume of runoff from the site will be less than the Pre-development Conditions. HydroCAD stormwater calculations for the 25- and 100-year design storms are provided in Appendices A and B, and the 2- 10- 25-, and 100-year storm events are summarized in the table below. The existing and proposed drainage conditions were evaluated at the point of discharge to the pond.

Table 2.2.1 - Rate of Discharge from Site

	Peak Rate of Runoff for <u>2-Year Storm Event (3.1")</u> Pre/Post	Peak Rate of Runoff for <u>10-Year Storm Event (4.6")</u> Pre/Post	Peak Rate of Runoff for <u>25-Year Storm Event (5.5")</u> Pre/Post	Peak Rate of Runoff for <u>100-Year Storm Event (7.3")</u> Pre/Post
West	4.19/ 3.95 cfs	16.70/ 14.86 cfs	27.18/ 24.11 cfs	51.42/ 44.12 cfs
East	7.13/ 7.28 cfs	14.12/ 14.02 cfs	18.94/ 18.66 cfs	82.86/ 76.07 cfs
Total Site	8.82/ 7.83 cfs	27.14/ 21.44 cfs	41.48/ 33.38 cfs	130.86/ 118.47 cfs
Total Site Change	-11%	-21%	-20%	-9%

Table 2.2.2 – Volume of Runoff from Site

	Volume of Runoff for <u>2-Year Storm Event (3.1")</u> Pre/Post	Volume of Runoff for <u>10-Year Storm Event (4.6")</u> Pre/Post	Volume of Runoff for <u>25-Year Storm Event (5.5")</u> Pre/Post	Volume of Runoff for <u>100-Year Storm Event (7.3")</u> Pre/Post
West	0.618/ 0.641 acft	1.737/ 1.737 acft	2.646/ 2.644 acft	4.767/ 4.705 acft
East	0.540/ 0.545 acft	2.023/ 1.994 acft	3.276/ 3.214 acft	6.004/ 5.870 acft
Total	1.158/ 1.186 acft	3.761/ 3.743 acft	5.922/ 5.858 acft	10.771/ 10.575 acft
Total Site Change	2%	0%	-1%	-2%

As shown above, there will be a net decrease in the rate and volume of runoff to from the site in the post-development condition with the exception of a small increase in the volume of runoff from the site from the 2-year storm.

2.3 Groundwater Recharge (Standard 3)

The performance standards require an approximate restoration of groundwater recharge in post-development conditions. Soil data was obtained from the NRC Web Soil Survey. On-site soils within the development area were classified as HSG A, HSG B and HSG D soils. Below is a calculation of the required recharge volume for the new site impervious area in each of these soil groups.

Volume required in HSG A Soils

$$13,708 \text{ sf} \times (0.6 \text{ in}) / (12 \text{ in/ft}) = \underline{685.4} \text{ cubic feet}$$

Volume required in HSG B Soils

$$55,215 \text{ sf} \times (0.35 \text{ in}) / (12 \text{ in/ft}) = \underline{1,610.4} \text{ cubic feet}$$

Volume required in HSG D Soils

$$31,441 \text{ sf} \times (0.1 \text{ in}) / (12 \text{ in/ft}) = \underline{262.0} \text{ cubic feet}$$

$$\text{Total recharge volume required} = \underline{2,557.8} \text{ cubic feet}$$

The project will use surface and subsurface infiltration basins for stormwater treatment and groundwater recharge. These basins were sized to capture and hold greater than the required stormwater recharge volume for the site. The total recharge volume for the proposed drainage system was calculated to be 4,118 cf, exceeding the required volume of 2,557.8 cf.

Additional proposed impervious areas will consist of the proposed houses. Below is a calculation of the required recharge volume for the impervious area related to the proposed houses in each of the soil groups.

Volume required in HSG A Soils

$$13,938 \text{ sf} \times (0.6 \text{ in}) / (12 \text{ in/ft}) = \underline{696.9} \text{ cubic feet}$$

Volume required in HSG B Soils

$$47,094 \text{ sf} \times (0.35 \text{ in}) / (12 \text{ in/ft}) = \underline{1,373.6} \text{ cubic feet}$$

Volume required in HSG D Soils

$$20,868 \text{ sf} \times (0.1 \text{ in}) / (12 \text{ in/ft}) = \underline{173.9} \text{ cubic feet}$$

$$\text{Total additional recharge volume required} = \underline{2,244.4} \text{ cubic feet}$$

Each of the 39 proposed houses will be connected to a subsurface infiltration system consisting of 8 HDPE chambers embedded in stone. Each of these systems will have a total storage capacity of 741 cf. The recharge volume for the chamber systems was calculated to be 28,899 cf (=39x741 cf), exceeding the additional required volume of 2,244.4 cf.

2.4 Water Quality (Standard 4)

Runoff generated by the site will be treated to remove at least 80 percent of the total annual load of Total Suspended Solids (TSS). Runoff from the new driveway areas will be directed to deep sump catchbasins or grassed swales to pretreat runoff prior to discharging to infiltration basins. Stormwater from the basins and the closed drainage system will be routed through a stormwater treatment unit then discharged to a natural filter strip at least 100 feet long prior to discharge from the site.

2.5 Land Use with Higher Potential Pollutant Loads (LUHPPLs) (Standard 5)

The proposed project involves the construction of a residential development. This use is not associated with higher potential pollutant loads.

2.6 Critical Areas (Standard 6)

The site does not contain critical environmental resource areas.

2.7 Redevelopments and Other Projects Subject to the Standards Only to the Maximum Extent Practicable (Standard 7)

A “redevelopment” project is defined in the MA DEP Stormwater Policy as: “Development, rehabilitation, expansion, and phased projects on previously developed sites, provided the redevelopment results in no net increase in impervious area.”

The proposed project does not meet this definition of a redevelopment project and the proposed stormwater management system is in full compliance with stormwater regulations for new development projects.

2.8 Construction-Period Pollution Prevention and Erosion and Sedimentation Control (Standard 8)

Below is a summary of the erosion and sediment control procedures. Additional detail can be found on Sheet C-500, Erosion Control Notes, and details provided on the project plans.

Land-disturbing activities proposed under this project will include the items listed in, and be sequenced according to, the following preliminary construction schedule:

1. Installation of temporary erosion controls (hay bales, sedimentation barriers, and catchbasin inlet protection).
2. Clearing and grubbing. Stockpile topsoil.
3. Excavation, grading, construction of drainage system, and stabilization.
4. Construction of roadways and utilities.
5. Construction of buildings, landscaping, and final stabilization.
6. Removal of temporary erosion controls and any trapped sediment.

Erosion/sediment controls will be in place throughout the site during all phases of construction. All existing catchbasins in the project area will have a silt basket installed under the grate. The Contractor shall be responsible for checking all of the erosion/sediment control measures periodically and after every storm. The Contractor shall repair, replace, and maintain all erosion/sediment control measures throughout construction until all disturbed areas have been stabilized. Efforts will be made to establish vegetative cover over all disturbed areas as soon as possible after the work in that area is complete. All disturbed areas will be treated with a 4-inch depth of loam and seed.

The occurrence of an extended shutdown during the construction phase of this project is not anticipated and is unlikely. Should unexpected events dictate, measures will be taken to stabilize the disturbed areas of the site as a last construction activity before the start of an extended shutdown. These measures will include careful planning of the immediate construction schedule so that further land disturbance is kept to a minimum and the re-stabilization of existing disturbed areas is maximized prior to the extended shutdown. Other measures will include the reinforcement and repair of all erosion/sediment controls in place at the time of the extended shutdown.

2.9 Operation and Maintenance Plan (Standard 9)

See Appendix D.

2.10 Prohibition of Illicit Discharges

Illicit discharges are prohibited.

APPENDIX A

Pre-Development Drainage Calculations

Paradise Valley Club
Grove/Winch Street
Framingham, Massachusetts

EXISTING CONDITIONS NOTES:

1. VERTICAL DATUM REFERS TO NGVD 1929.
2. THE WETLAND BOUNDARIES SHOWN HERON ARE BASED WETLANDS FLAGS SURVEY LOCATED BY GUERRIERE & HANLON AND PROVIDED TO OCG IN THE SUMMER OF 2016.
3. EXISTING CONDITIONS AND TOPOGRAPHIC INFORMATION SHOWN HERON WAS PROVIDED BY BENCHMARK ENGINEERING.



APPROVED BY THE
FRAMINGHAM PLANNING BOARD

Site:

PARADISE VALLEY CLUB

1060 GROVE STREET
FRAMINGHAM, MASSACHUSETTS

Prepared for:

BENCHMARK ENGINEERING CORP.
120 QUARRY DRIVE
MILFORD, MASSACHUSETTS 01757

LEGEND

SUBCATMENT BOUNDARY

DRAINAGE FLOW PATH

④

SUBCATCHMENT NUMBER

NRC SOIL BOUNDARY

”B”

NRC HRDROLOGIC SOIL GROUP

SEAL OF COMMONWEALTH OF MASSACHUSETTS

BEAN P. MALONE
CIVIL
No. 48204

6/23/16

0 40 80 160

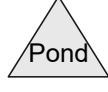
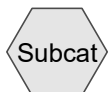
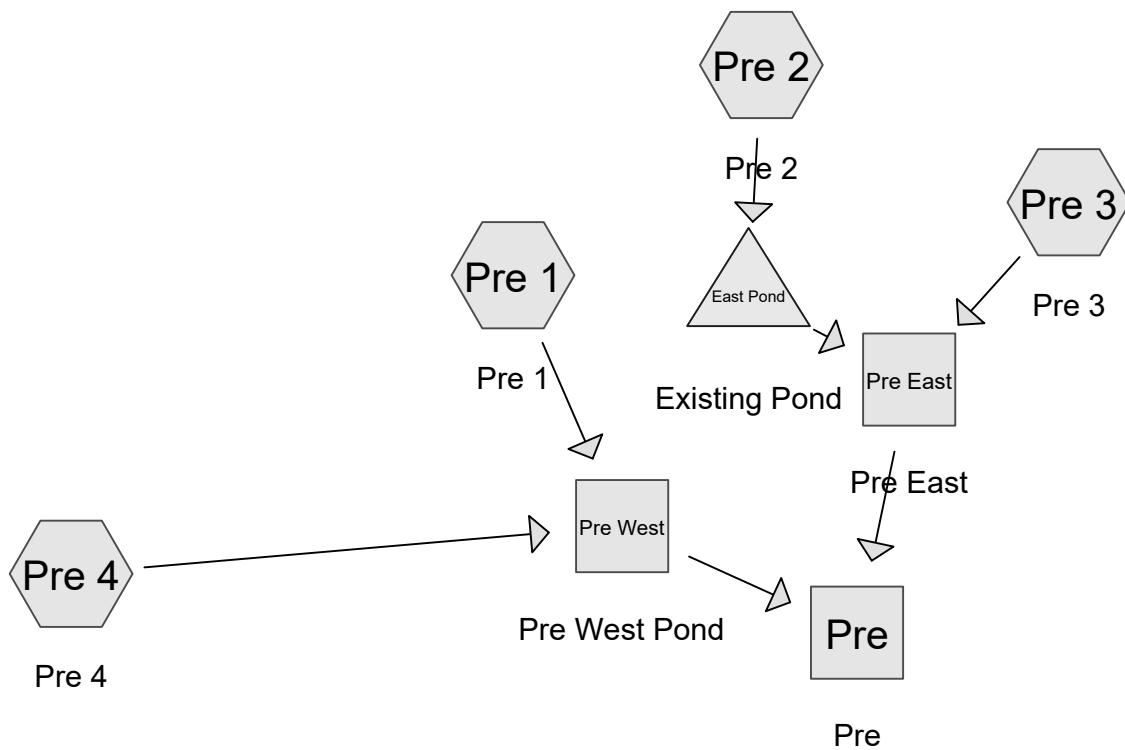
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1"=80'

OCG

Oak Consulting Group
P.O. Box 1123
Newburyport, MA 01950
Ph. 978.312.3120

PRE-DEVELOPMENT
SUBCATCHMENT PLAN

2	GENERAL REVISIONS	9/23/16
1	REVISED SEWER	6/27/16
No.	Revision/Issue	Date
Design by:	SPM	Checked by: PFA
Drawn by:	SPM	Approved by: PFA
Project:	13005	Date: December 8, 2015
Sheet:	DR-100	



13005 PRE-POST OSPD

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Page 2

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.212	39	>75% Grass cover, Good, HSG A (Pre 1)
10.866	61	>75% Grass cover, Good, HSG B (Pre 1, Pre 2)
0.373	74	>75% Grass cover, Good, HSG C (Pre 1)
1.817	80	>75% Grass cover, Good, HSG D (Pre 2, Pre 3)
0.524	96	Gravel surface, HSG B (Pre 1, Pre 2, Pre 3)
0.232	96	Gravel surface, HSG D (Pre 3)
3.046	98	Unconnected pavement, HSG B (Pre 1, Pre 2, Pre 3, Pre 4)
0.143	98	Unconnected pavement, HSG C (Pre 1)
0.721	98	Unconnected pavement, HSG D (Pre 2)
2.667	32	Woods/grass comb., Good, HSG A (Pre 1, Pre 2)
14.515	58	Woods/grass comb., Good, HSG B (Pre 1, Pre 2, Pre 3, Pre 4)
1.401	72	Woods/grass comb., Good, HSG C (Pre 1)
9.303	79	Woods/grass comb., Good, HSG D (Pre 1, Pre 2, Pre 3)
46.818	66	TOTAL AREA

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Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
3.879	HSG A	Pre 1, Pre 2
28.950	HSG B	Pre 1, Pre 2, Pre 3, Pre 4
1.916	HSG C	Pre 1
12.073	HSG D	Pre 1, Pre 2, Pre 3
0.000	Other	
46.818		TOTAL AREA

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Page 4

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
1.212	10.866	0.373	1.817	0.000	14.268	>75% Grass cover, Good	Pre 1, Pre 2, Pre 3
0.000	0.524	0.000	0.232	0.000	0.757	Gravel surface	Pre 1, Pre 2, Pre 3
0.000	3.046	0.143	0.721	0.000	3.909	Unconnected pavement	Pre 1, Pre 2, Pre 3, Pre 4
2.667	14.515	1.401	9.303	0.000	27.885	Woods/grass comb., Good	Pre 1, Pre 2, Pre 3, Pre 4
3.879	28.950	1.916	12.073	0.000	46.818	TOTAL AREA	

13005 PRE-POST OSPD*Type III 24-hr 2-YR Rainfall=3.20"*

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Page 5

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPre 1: Pre 1 Runoff Area=991,957 sf 7.10% Impervious Runoff Depth>0.32"
Flow Length=685' Slope=0.0620 '/' Tc=16.3 min UI Adjusted CN=59 Runoff=4.14 cfs 0.609 af

SubcatchmentPre 2: Pre 2 Runoff Area=768,117 sf 12.39% Impervious Runoff Depth>0.70"
Flow Length=1,202' Slope=0.0640 '/' Tc=18.9 min UI Adjusted CN=69 Runoff=9.64 cfs 1.025 af

SubcatchmentPre 3: Pre 3 Runoff Area=268,019 sf 1.00% Impervious Runoff Depth>1.05"
Flow Length=621' Slope=0.0780 '/' Tc=8.8 min CN=76 Runoff=7.13 cfs 0.540 af

SubcatchmentPre 4: Pre 4 Runoff Area=11,316 sf 17.44% Impervious Runoff Depth>0.39"
Flow Length=103' Slope=0.0530 '/' Tc=6.0 min UI Adjusted CN=61 Runoff=0.08 cfs 0.008 af

Reach Pre: Pre Inflow=8.82 cfs 1.158 af
Outflow=8.82 cfs 1.158 af

Reach Pre East: Pre East Inflow=7.13 cfs 0.540 af
Outflow=7.13 cfs 0.540 af

Reach Pre West: Pre West Pond Inflow=4.19 cfs 0.618 af
Outflow=4.19 cfs 0.618 af

Pond East Pond: Existing Pond Peak Elev=263.12' Storage=44,593 cf Inflow=9.64 cfs 1.025 af
Outflow=0.00 cfs 0.000 af

Total Runoff Area = 46.818 ac Runoff Volume = 2.183 af Average Runoff Depth = 0.56"
91.65% Pervious = 42.909 ac 8.35% Impervious = 3.909 ac

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Type III 24-hr 2-YR Rainfall=3.20"

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Page 6

Summary for Subcatchment Pre 1: Pre 1

Runoff = 4.14 cfs @ 12.39 hrs, Volume= 0.609 af, Depth> 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.20"

Area (sf)	CN	Adj	Description
64,222	98		Unconnected pavement, HSG B
6,212	98		Unconnected pavement, HSG C
0	98		Unconnected pavement, HSG D
15,583	96		Gravel surface, HSG B
0	96		Gravel surface, HSG D
115,244	32		Woods/grass comb., Good, HSG A
52,781	39		>75% Grass cover, Good, HSG A
334,157	58		Woods/grass comb., Good, HSG B
284,524	61		>75% Grass cover, Good, HSG B
61,008	72		Woods/grass comb., Good, HSG C
16,255	74		>75% Grass cover, Good, HSG C
41,971	79		Woods/grass comb., Good, HSG D
0	80		>75% Grass cover, Good, HSG D
991,957	60	59	Weighted Average, UI Adjusted
921,523	57	57	92.90% Pervious Area
70,434	98	98	7.10% Impervious Area
70,434			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	685	0.0620	0.70		Lag/CN Method, Pre 1

Summary for Subcatchment Pre 2: Pre 2

Runoff = 9.64 cfs @ 12.30 hrs, Volume= 1.025 af, Depth> 0.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.20"

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Type III 24-hr 2-YR Rainfall=3.20"

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Area (sf)	CN	Adj	Description
63,792	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
31,406	98		Unconnected pavement, HSG D
4,316	96		Gravel surface, HSG B
0	96		Gravel surface, HSG D
930	32		Woods/grass comb., Good, HSG A
0	39		>75% Grass cover, Good, HSG A
236,613	58		Woods/grass comb., Good, HSG B
188,779	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
167,331	79		Woods/grass comb., Good, HSG D
74,950	80		>75% Grass cover, Good, HSG D
768,117	71	69	Weighted Average, UI Adjusted
672,919	67	67	87.61% Pervious Area
95,198	98	98	12.39% Impervious Area
95,198			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.9	1,202	0.0640	1.06		Lag/CN Method, Pre 2

Summary for Subcatchment Pre 3: Pre 3

Runoff = 7.13 cfs @ 12.14 hrs, Volume= 0.540 af, Depth> 1.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.20"

Area (sf)	CN	Description
2,674	98	Unconnected pavement, HSG B
0	98	Unconnected pavement, HSG C
0	98	Unconnected pavement, HSG D
2,943	96	Gravel surface, HSG B
10,114	96	Gravel surface, HSG D
0	32	Woods/grass comb., Good, HSG A
0	39	>75% Grass cover, Good, HSG A
52,154	58	Woods/grass comb., Good, HSG B
0	61	>75% Grass cover, Good, HSG B
0	72	Woods/grass comb., Good, HSG C
0	74	>75% Grass cover, Good, HSG C
195,915	79	Woods/grass comb., Good, HSG D
4,219	80	>75% Grass cover, Good, HSG D
268,019	76	Weighted Average
265,345	76	99.00% Pervious Area
2,674	98	1.00% Impervious Area
2,674		100.00% Unconnected

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Type III 24-hr 2-YR Rainfall=3.20"

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Page 8

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	621	0.0780	1.18		Lag/CN Method, Pre 3

Summary for Subcatchment Pre 4: Pre 4

Runoff = 0.08 cfs @ 12.13 hrs, Volume= 0.008 af, Depth> 0.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.20"

Area (sf)	CN	Adj	Description
1,974	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
0	98		Unconnected pavement, HSG D
0	96		Gravel surface, HSG B
0	96		Gravel surface, HSG D
0	32		Woods/grass comb., Good, HSG A
0	39		>75% Grass cover, Good, HSG A
9,342	58		Woods/grass comb., Good, HSG B
0	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
0	79		Woods/grass comb., Good, HSG D
0	80		>75% Grass cover, Good, HSG D
11,316	65	61	Weighted Average, UI Adjusted
9,342	58	58	82.56% Pervious Area
1,974	98	98	17.44% Impervious Area
1,974			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	103	0.0530	0.50		Lag/CN Method, Pre 4
3.4	103	Total, Increased to minimum Tc = 6.0 min			

Summary for Reach Pre: Pre

Inflow Area = 46.818 ac, 8.35% Impervious, Inflow Depth > 0.30" for 2-YR event
 Inflow = 8.82 cfs @ 12.18 hrs, Volume= 1.158 af
 Outflow = 8.82 cfs @ 12.18 hrs, Volume= 1.158 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach Pre East: Pre East

Inflow Area = 23.786 ac, 9.45% Impervious, Inflow Depth > 0.27" for 2-YR event
 Inflow = 7.13 cfs @ 12.14 hrs, Volume= 0.540 af
 Outflow = 7.13 cfs @ 12.14 hrs, Volume= 0.540 af, Atten= 0%, Lag= 0.0 min

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Type III 24-hr 2-YR Rainfall=3.20"

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Page 9

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach Pre West: Pre West Pond

Inflow Area = 23.032 ac, 7.22% Impervious, Inflow Depth > 0.32" for 2-YR event
 Inflow = 4.19 cfs @ 12.39 hrs, Volume= 0.618 af
 Outflow = 4.19 cfs @ 12.39 hrs, Volume= 0.618 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond East Pond: Existing Pond

Inflow Area = 17.634 ac, 12.39% Impervious, Inflow Depth > 0.70" for 2-YR event
 Inflow = 9.64 cfs @ 12.30 hrs, Volume= 1.025 af
 Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 263.12' @ 20.00 hrs Surf.Area= 48,405 sf Storage= 44,593 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	262.00'	64,223 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
262.00	31,406	0	0
263.50	54,224	64,223	64,223

Device	Routing	Invert	Outlet Devices
#1	Primary	263.30'	70.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=262.00' TW=0.00' (Dynamic Tailwater)

↑1=Broad-Crested Rectangular Weir(Controls 0.00 cfs)

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Page 10

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPre 1: Pre 1 Runoff Area=991,957 sf 7.10% Impervious Runoff Depth>0.90"
Flow Length=685' Slope=0.0620 '/' Tc=16.3 min UI Adjusted CN=59 Runoff=16.52 cfs 1.715 af

SubcatchmentPre 2: Pre 2 Runoff Area=768,117 sf 12.39% Impervious Runoff Depth>1.52"
Flow Length=1,202' Slope=0.0640 '/' Tc=18.9 min UI Adjusted CN=69 Runoff=22.81 cfs 2.239 af

SubcatchmentPre 3: Pre 3 Runoff Area=268,019 sf 1.00% Impervious Runoff Depth>2.05"
Flow Length=621' Slope=0.0780 '/' Tc=8.8 min CN=76 Runoff=14.12 cfs 1.049 af

SubcatchmentPre 4: Pre 4 Runoff Area=11,316 sf 17.44% Impervious Runoff Depth>1.02"
Flow Length=103' Slope=0.0530 '/' Tc=6.0 min UI Adjusted CN=61 Runoff=0.30 cfs 0.022 af

Reach Pre: Pre Inflow=27.14 cfs 3.761 af
Outflow=27.14 cfs 3.761 af

Reach Pre East: Pre East Inflow=14.12 cfs 2.023 af
Outflow=14.12 cfs 2.023 af

Reach Pre West: Pre West Pond Inflow=16.70 cfs 1.737 af
Outflow=16.70 cfs 1.737 af

Pond East Pond: Existing Pond Peak Elev=263.37' Storage=57,488 cf Inflow=22.81 cfs 2.239 af
Outflow=3.27 cfs 0.974 af

Total Runoff Area = 46.818 ac Runoff Volume = 5.026 af Average Runoff Depth = 1.29"
91.65% Pervious = 42.909 ac 8.35% Impervious = 3.909 ac

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Type III 24-hr 10-YR Rainfall=4.60"

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Page 11

Summary for Subcatchment Pre 1: Pre 1

Runoff = 16.52 cfs @ 12.27 hrs, Volume= 1.715 af, Depth> 0.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Adj	Description
64,222	98		Unconnected pavement, HSG B
6,212	98		Unconnected pavement, HSG C
0	98		Unconnected pavement, HSG D
15,583	96		Gravel surface, HSG B
0	96		Gravel surface, HSG D
115,244	32		Woods/grass comb., Good, HSG A
52,781	39		>75% Grass cover, Good, HSG A
334,157	58		Woods/grass comb., Good, HSG B
284,524	61		>75% Grass cover, Good, HSG B
61,008	72		Woods/grass comb., Good, HSG C
16,255	74		>75% Grass cover, Good, HSG C
41,971	79		Woods/grass comb., Good, HSG D
0	80		>75% Grass cover, Good, HSG D
991,957	60	59	Weighted Average, UI Adjusted
921,523	57	57	92.90% Pervious Area
70,434	98	98	7.10% Impervious Area
70,434			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	685	0.0620	0.70		Lag/CN Method, Pre 1

Summary for Subcatchment Pre 2: Pre 2

Runoff = 22.81 cfs @ 12.28 hrs, Volume= 2.239 af, Depth> 1.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.60"

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Type III 24-hr 10-YR Rainfall=4.60"

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Page 12

Area (sf)	CN	Adj	Description
63,792	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
31,406	98		Unconnected pavement, HSG D
4,316	96		Gravel surface, HSG B
0	96		Gravel surface, HSG D
930	32		Woods/grass comb., Good, HSG A
0	39		>75% Grass cover, Good, HSG A
236,613	58		Woods/grass comb., Good, HSG B
188,779	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
167,331	79		Woods/grass comb., Good, HSG D
74,950	80		>75% Grass cover, Good, HSG D
768,117	71	69	Weighted Average, UI Adjusted
672,919	67	67	87.61% Pervious Area
95,198	98	98	12.39% Impervious Area
95,198			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.9	1,202	0.0640	1.06		Lag/CN Method, Pre 2

Summary for Subcatchment Pre 3: Pre 3

Runoff = 14.12 cfs @ 12.13 hrs, Volume= 1.049 af, Depth> 2.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
2,674	98	Unconnected pavement, HSG B
0	98	Unconnected pavement, HSG C
0	98	Unconnected pavement, HSG D
2,943	96	Gravel surface, HSG B
10,114	96	Gravel surface, HSG D
0	32	Woods/grass comb., Good, HSG A
0	39	>75% Grass cover, Good, HSG A
52,154	58	Woods/grass comb., Good, HSG B
0	61	>75% Grass cover, Good, HSG B
0	72	Woods/grass comb., Good, HSG C
0	74	>75% Grass cover, Good, HSG C
195,915	79	Woods/grass comb., Good, HSG D
4,219	80	>75% Grass cover, Good, HSG D
268,019	76	Weighted Average
265,345	76	99.00% Pervious Area
2,674	98	1.00% Impervious Area
2,674		100.00% Unconnected

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Type III 24-hr 10-YR Rainfall=4.60"

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Page 13

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	621	0.0780	1.18		Lag/CN Method, Pre 3

Summary for Subcatchment Pre 4: Pre 4

Runoff = 0.30 cfs @ 12.11 hrs, Volume= 0.022 af, Depth> 1.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Adj	Description
1,974	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
0	98		Unconnected pavement, HSG D
0	96		Gravel surface, HSG B
0	96		Gravel surface, HSG D
0	32		Woods/grass comb., Good, HSG A
0	39		>75% Grass cover, Good, HSG A
9,342	58		Woods/grass comb., Good, HSG B
0	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
0	79		Woods/grass comb., Good, HSG D
0	80		>75% Grass cover, Good, HSG D
11,316	65	61	Weighted Average, UI Adjusted
9,342	58	58	82.56% Pervious Area
1,974	98	98	17.44% Impervious Area
1,974			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	103	0.0530	0.50		Lag/CN Method, Pre 4
3.4	103	Total, Increased to minimum Tc = 6.0 min			

Summary for Reach Pre: Pre

Inflow Area = 46.818 ac, 8.35% Impervious, Inflow Depth > 0.96" for 10-YR event
 Inflow = 27.14 cfs @ 12.20 hrs, Volume= 3.761 af
 Outflow = 27.14 cfs @ 12.20 hrs, Volume= 3.761 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach Pre East: Pre East

Inflow Area = 23.786 ac, 9.45% Impervious, Inflow Depth > 1.02" for 10-YR event
 Inflow = 14.12 cfs @ 12.13 hrs, Volume= 2.023 af
 Outflow = 14.12 cfs @ 12.13 hrs, Volume= 2.023 af, Atten= 0%, Lag= 0.0 min

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Type III 24-hr 10-YR Rainfall=4.60"

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Page 14

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach Pre West: Pre West Pond

Inflow Area = 23.032 ac, 7.22% Impervious, Inflow Depth > 0.91" for 10-YR event
 Inflow = 16.70 cfs @ 12.27 hrs, Volume= 1.737 af
 Outflow = 16.70 cfs @ 12.27 hrs, Volume= 1.737 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond East Pond: Existing Pond

Inflow Area = 17.634 ac, 12.39% Impervious, Inflow Depth > 1.52" for 10-YR event
 Inflow = 22.81 cfs @ 12.28 hrs, Volume= 2.239 af
 Outflow = 3.27 cfs @ 13.59 hrs, Volume= 0.974 af, Atten= 86%, Lag= 78.8 min
 Primary = 3.27 cfs @ 13.59 hrs, Volume= 0.974 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 263.37' @ 13.59 hrs Surf.Area= 52,301 sf Storage= 57,488 cf

Plug-Flow detention time= 206.4 min calculated for 0.974 af (43% of inflow)
 Center-of-Mass det. time= 116.4 min (939.3 - 822.9)

Volume	Invert	Avail.Storage	Storage Description
#1	262.00'	64,223 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
262.00	31,406	0	0
263.50	54,224	64,223	64,223

Device	Routing	Invert	Outlet Devices
#1	Primary	263.30'	70.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=3.27 cfs @ 13.59 hrs HW=263.37' TW=0.00' (Dynamic Tailwater)

↑1=Broad-Crested Rectangular Weir (Weir Controls 3.27 cfs @ 0.63 fps)

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Page 15

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPre 1: Pre 1 Runoff Area=991,957 sf 7.10% Impervious Runoff Depth>1.38"
Flow Length=685' Slope=0.0620 '/' Tc=16.3 min UI Adjusted CN=59 Runoff=26.91 cfs 2.613 af

SubcatchmentPre 2: Pre 2 Runoff Area=768,117 sf 12.39% Impervious Runoff Depth>2.14"
Flow Length=1,202' Slope=0.0640 '/' Tc=18.9 min UI Adjusted CN=69 Runoff=32.55 cfs 3.140 af

SubcatchmentPre 3: Pre 3 Runoff Area=268,019 sf 1.00% Impervious Runoff Depth>2.75"
Flow Length=621' Slope=0.0780 '/' Tc=8.8 min CN=76 Runoff=18.94 cfs 1.409 af

SubcatchmentPre 4: Pre 4 Runoff Area=11,316 sf 17.44% Impervious Runoff Depth>1.53"
Flow Length=103' Slope=0.0530 '/' Tc=6.0 min UI Adjusted CN=61 Runoff=0.47 cfs 0.033 af

Reach Pre: Pre Inflow=41.48 cfs 5.922 af
Outflow=41.48 cfs 5.922 af

Reach Pre East: Pre East Inflow=18.94 cfs 3.276 af
Outflow=18.94 cfs 3.276 af

Reach Pre West: Pre West Pond Inflow=27.18 cfs 2.646 af
Outflow=27.18 cfs 2.646 af

Pond East Pond: Existing Pond Peak Elev=263.48' Storage=63,207 cf Inflow=32.55 cfs 3.140 af
Outflow=12.64 cfs 1.868 af

Total Runoff Area = 46.818 ac Runoff Volume = 7.194 af Average Runoff Depth = 1.84"
91.65% Pervious = 42.909 ac 8.35% Impervious = 3.909 ac

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Type III 24-hr 25-YR Rainfall=5.50"

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Page 16

Summary for Subcatchment Pre 1: Pre 1

Runoff = 26.91 cfs @ 12.25 hrs, Volume= 2.613 af, Depth> 1.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.50"

Area (sf)	CN	Adj	Description
64,222	98		Unconnected pavement, HSG B
6,212	98		Unconnected pavement, HSG C
0	98		Unconnected pavement, HSG D
15,583	96		Gravel surface, HSG B
0	96		Gravel surface, HSG D
115,244	32		Woods/grass comb., Good, HSG A
52,781	39		>75% Grass cover, Good, HSG A
334,157	58		Woods/grass comb., Good, HSG B
284,524	61		>75% Grass cover, Good, HSG B
61,008	72		Woods/grass comb., Good, HSG C
16,255	74		>75% Grass cover, Good, HSG C
41,971	79		Woods/grass comb., Good, HSG D
0	80		>75% Grass cover, Good, HSG D
991,957	60	59	Weighted Average, UI Adjusted
921,523	57	57	92.90% Pervious Area
70,434	98	98	7.10% Impervious Area
70,434			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	685	0.0620	0.70		Lag/CN Method, Pre 1

Summary for Subcatchment Pre 2: Pre 2

Runoff = 32.55 cfs @ 12.27 hrs, Volume= 3.140 af, Depth> 2.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.50"

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Type III 24-hr 25-YR Rainfall=5.50"

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Page 17

Area (sf)	CN	Adj	Description
63,792	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
31,406	98		Unconnected pavement, HSG D
4,316	96		Gravel surface, HSG B
0	96		Gravel surface, HSG D
930	32		Woods/grass comb., Good, HSG A
0	39		>75% Grass cover, Good, HSG A
236,613	58		Woods/grass comb., Good, HSG B
188,779	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
167,331	79		Woods/grass comb., Good, HSG D
74,950	80		>75% Grass cover, Good, HSG D
768,117	71	69	Weighted Average, UI Adjusted
672,919	67	67	87.61% Pervious Area
95,198	98	98	12.39% Impervious Area
95,198			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.9	1,202	0.0640	1.06		Lag/CN Method, Pre 2

Summary for Subcatchment Pre 3: Pre 3

Runoff = 18.94 cfs @ 12.13 hrs, Volume= 1.409 af, Depth> 2.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.50"

Area (sf)	CN	Description
2,674	98	Unconnected pavement, HSG B
0	98	Unconnected pavement, HSG C
0	98	Unconnected pavement, HSG D
2,943	96	Gravel surface, HSG B
10,114	96	Gravel surface, HSG D
0	32	Woods/grass comb., Good, HSG A
0	39	>75% Grass cover, Good, HSG A
52,154	58	Woods/grass comb., Good, HSG B
0	61	>75% Grass cover, Good, HSG B
0	72	Woods/grass comb., Good, HSG C
0	74	>75% Grass cover, Good, HSG C
195,915	79	Woods/grass comb., Good, HSG D
4,219	80	>75% Grass cover, Good, HSG D
268,019	76	Weighted Average
265,345	76	99.00% Pervious Area
2,674	98	1.00% Impervious Area
2,674		100.00% Unconnected

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Type III 24-hr 25-YR Rainfall=5.50"

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Page 18

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	621	0.0780	1.18		Lag/CN Method, Pre 3

Summary for Subcatchment Pre 4: Pre 4

Runoff = 0.47 cfs @ 12.10 hrs, Volume= 0.033 af, Depth> 1.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.50"

Area (sf)	CN	Adj	Description
1,974	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
0	98		Unconnected pavement, HSG D
0	96		Gravel surface, HSG B
0	96		Gravel surface, HSG D
0	32		Woods/grass comb., Good, HSG A
0	39		>75% Grass cover, Good, HSG A
9,342	58		Woods/grass comb., Good, HSG B
0	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
0	79		Woods/grass comb., Good, HSG D
0	80		>75% Grass cover, Good, HSG D
11,316	65	61	Weighted Average, UI Adjusted
9,342	58	58	82.56% Pervious Area
1,974	98	98	17.44% Impervious Area
1,974			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	103	0.0530	0.50		Lag/CN Method, Pre 4
3.4	103	Total, Increased to minimum Tc = 6.0 min			

Summary for Reach Pre: Pre

Inflow Area = 46.818 ac, 8.35% Impervious, Inflow Depth > 1.52" for 25-YR event
Inflow = 41.48 cfs @ 12.20 hrs, Volume= 5.922 af
Outflow = 41.48 cfs @ 12.20 hrs, Volume= 5.922 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach Pre East: Pre East

Inflow Area = 23.786 ac, 9.45% Impervious, Inflow Depth > 1.65" for 25-YR event
Inflow = 18.94 cfs @ 12.13 hrs, Volume= 3.276 af
Outflow = 18.94 cfs @ 12.13 hrs, Volume= 3.276 af, Atten= 0%, Lag= 0.0 min

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Type III 24-hr 25-YR Rainfall=5.50"

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Page 19

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach Pre West: Pre West Pond

Inflow Area = 23.032 ac, 7.22% Impervious, Inflow Depth > 1.38" for 25-YR event
 Inflow = 27.18 cfs @ 12.25 hrs, Volume= 2.646 af
 Outflow = 27.18 cfs @ 12.25 hrs, Volume= 2.646 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond East Pond: Existing Pond

Inflow Area = 17.634 ac, 12.39% Impervious, Inflow Depth > 2.14" for 25-YR event
 Inflow = 32.55 cfs @ 12.27 hrs, Volume= 3.140 af
 Outflow = 12.64 cfs @ 12.71 hrs, Volume= 1.868 af, Atten= 61%, Lag= 26.4 min
 Primary = 12.64 cfs @ 12.71 hrs, Volume= 1.868 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 263.48' @ 12.71 hrs Surf.Area= 53,938 sf Storage= 63,207 cf

Plug-Flow detention time= 148.1 min calculated for 1.868 af (59% of inflow)
 Center-of-Mass det. time= 70.2 min (885.7 - 815.5)

Volume	Invert	Avail.Storage	Storage Description
#1	262.00'	64,223 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
262.00	31,406	0	0
263.50	54,224	64,223	64,223

Device	Routing	Invert	Outlet Devices
#1	Primary	263.30'	70.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

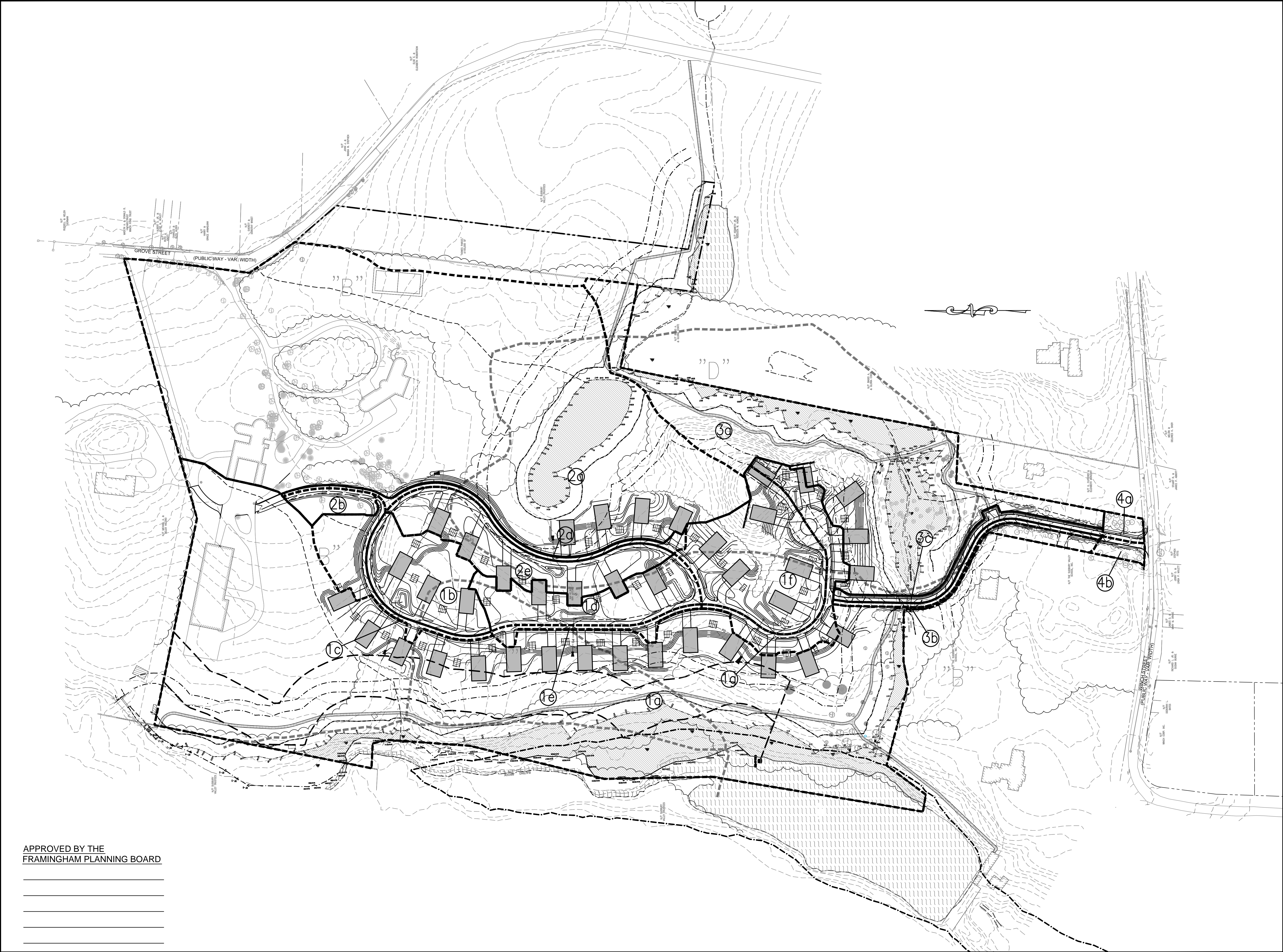
Primary OutFlow Max=12.57 cfs @ 12.71 hrs HW=263.48' TW=0.00' (Dynamic Tailwater)

↑1=Broad-Crested Rectangular Weir (Weir Controls 12.57 cfs @ 0.99 fps)

APPENDIX B

Post-Development Drainage Calculations

Paradise Valley Club
Grove/Winch Street
Framingham, Massachusetts



APPROVED BY THE
FRAMINGHAM PLANNING BOARD

Site:

PARADISE VALLEY CLUB

1060 GROVE STREET
FRAMINGHAM, MASSACHUSETTS

Prepared for:

BENCHMARK ENGINEERING CORP.
120 QUARRY DRIVE
MILFORD, MASSACHUSETTS 01757

LEGEND

--- SUBCATMENT BOUNDARY

--- DRAINAGE FLOW PATH

④ SUBCATCHMENT NUMBER

--- NRC SOIL BOUNDARY

”B” NRC HRDROLOGIC SOIL GROUP

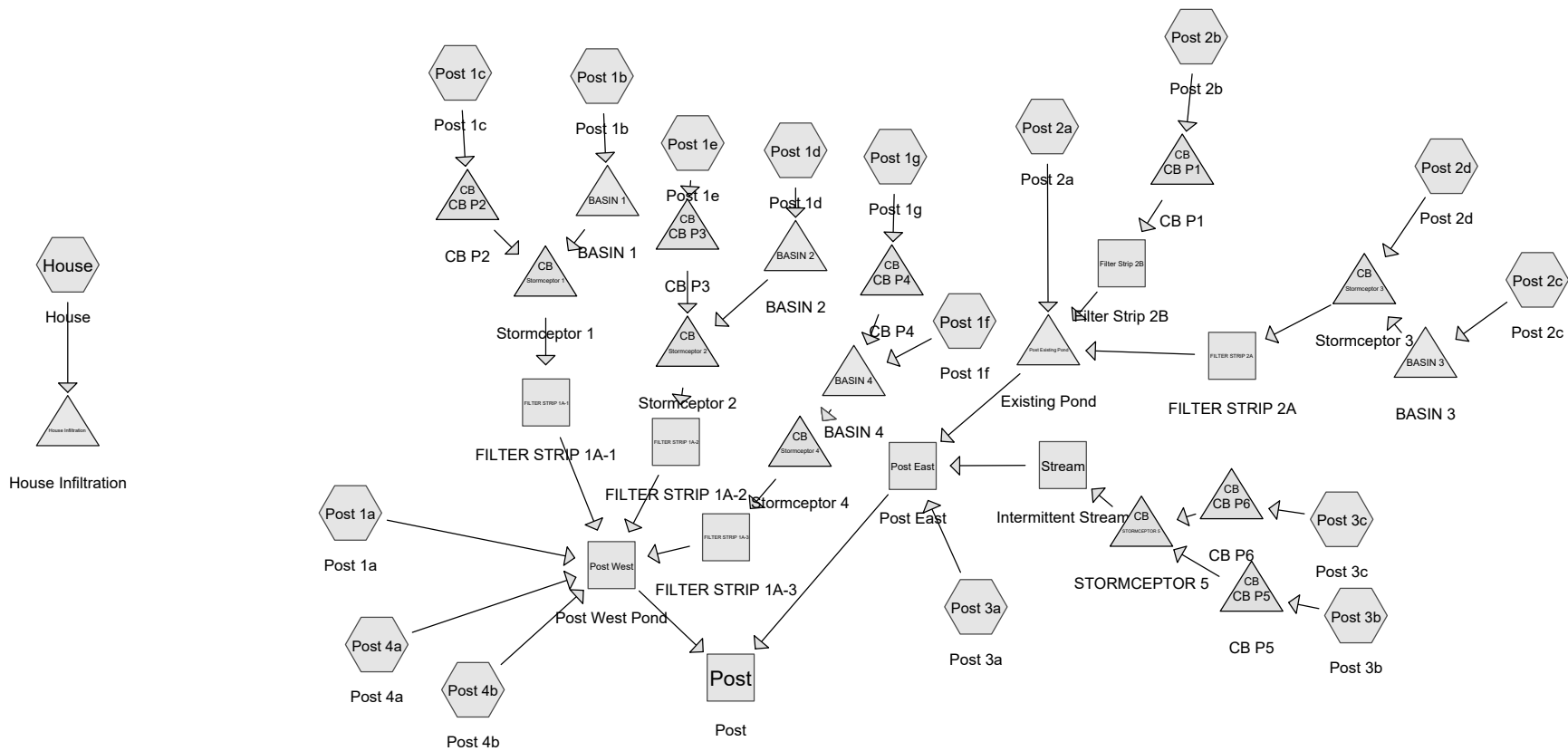
0 40 80 160
SCALE in FEET
1"=80'

OCG

Oak Consulting Group
P.O. Box 1123
Newburyport, MA 01950
Ph. 978.312.3120

POST-DEVELOPMENT
SUBCATCHMENT PLAN

2	GENERAL REVISIONS	9/23/16
1	REVISED SEWER	6/27/16
No.	Revision/Issue	Date
Design by:	SPM	Checked by: PFA
Drawn by:	SPM	Approved by: PFA
Project:	13005	Date: December 8, 2015
Sheet:	DR-200	



Routing Diagram for 13005 PRE-POST OSPD

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Page 2

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.181	39	>75% Grass cover, Good, HSG A (Post 1a, Post 1b, Post 1c, Post 1d, Post 1e)
14.387	61	>75% Grass cover, Good, HSG B (Post 1a, Post 1b, Post 1c, Post 1d, Post 1e, Post 1f, Post 1g, Post 2a, Post 2b, Post 2c, Post 3a, Post 3c, Post 4a, Post 4b)
0.373	74	>75% Grass cover, Good, HSG C (Post 1a)
4.138	80	>75% Grass cover, Good, HSG D (Post 1d, Post 1f, Post 1g, Post 2a, Post 2c, Post 2d, Post 3a, Post 3c)
0.354	98	Unconnected pavement, HSG A (House, Post 1a, Post 1b, Post 1c, Post 1d, Post 1e)
4.563	98	Unconnected pavement, HSG B (Post 1a, Post 1b, Post 1c, Post 1d, Post 1e, Post 1f, Post 1g, Post 2a, Post 2b, Post 2c, Post 2d, Post 3b, Post 3c, Post 4a, Post 4b)
0.143	98	Unconnected pavement, HSG C (Post 1a)
1.533	98	Unconnected pavement, HSG D (Post 1d, Post 1f, Post 1g, Post 2a, Post 2c, Post 2d, Post 3a, Post 3c)
1.071	32	Woods/grass comb., Good, HSG A (Post 1a)
9.023	58	Woods/grass comb., Good, HSG B (Post 1a, Post 1f, Post 2a, Post 3a, Post 4a, Post 4b)
1.401	72	Woods/grass comb., Good, HSG C (Post 1a)
5.871	79	Woods/grass comb., Good, HSG D (Post 1f, Post 1g, Post 2a, Post 3a)
45.037	69	TOTAL AREA

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Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
3.607	HSG A	House, Post 1a, Post 1b, Post 1c, Post 1d, Post 1e
27.973	HSG B	Post 1a, Post 1b, Post 1c, Post 1d, Post 1e, Post 1f, Post 1g, Post 2a, Post 2b, Post 2c, Post 2d, Post 3a, Post 3b, Post 3c, Post 4a, Post 4b
1.916	HSG C	Post 1a
11.541	HSG D	Post 1d, Post 1f, Post 1g, Post 2a, Post 2c, Post 2d, Post 3a, Post 3c
0.000	Other	
45.037		TOTAL AREA

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Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
2.181	14.387	0.373	4.138	0.000	21.079	>75% Grass cover, Good	Post 1a, Post 1b, Post 1c, Post 1d, Post 1e, Post 1f, Post 1g, Post 2a, Post 2b, Post 2c, Post 2d, Post 3a, Post 3c, Post 4a, Post 4b
0.354	4.563	0.143	1.533	0.000	6.593	Unconnected pavement	House, Post 1a, Post 1b, Post 1c, Post 1d, Post 1e, Post 1f, Post 1g, Post 2a, Post 2b, Post 2c, Post 2d, Post 3a, Post 3b, Post 3c, Post 4a, Post 4b
1.071	9.023	1.401	5.871	0.000	17.365	Woods/grass comb., Good	Post 1a, Post 1f, Post 1g, Post 2a, Post 3a, Post 4a, Post 4b
3.607	27.973	1.916	11.541	0.000	45.037	TOTAL AREA	

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Page 5

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentHouse: House

Runoff Area=2,100 sf 100.00% Impervious Runoff Depth>2.77"
Flow Length=30' Slope=0.3000 '/' Tc=6.0 min CN=98 Runoff=0.15 cfs 0.011 af

SubcatchmentPost 1a: Post 1a

Runoff Area=690,766 sf 11.01% Impervious Runoff Depth>0.32"
Flow Length=936' Slope=0.0530 '/' Tc=22.1 min UI Adjusted CN=59 Runoff=2.67 cfs 0.423 af

SubcatchmentPost 1b: Post 1b

Runoff Area=49,032 sf 16.57% Impervious Runoff Depth>0.32"
Flow Length=264' Slope=0.0530 '/' Tc=7.8 min UI Adjusted CN=59 Runoff=0.23 cfs 0.030 af

SubcatchmentPost 1c: Post 1c

Runoff Area=28,115 sf 29.72% Impervious Runoff Depth>0.57"
Flow Length=497' Slope=0.0330 '/' Tc=12.6 min UI Adjusted CN=66 Runoff=0.31 cfs 0.031 af

SubcatchmentPost 1d: Post 1d

Runoff Area=46,660 sf 17.82% Impervious Runoff Depth>0.35"
Flow Length=445' Slope=0.0370 '/' Tc=13.5 min UI Adjusted CN=60 Runoff=0.24 cfs 0.032 af

SubcatchmentPost 1e: Post 1e

Runoff Area=8,566 sf 84.33% Impervious Runoff Depth>2.04"
Flow Length=335' Slope=0.0130 '/' Tc=8.2 min CN=90 Runoff=0.45 cfs 0.033 af

SubcatchmentPost 1f: Post 1f

Runoff Area=77,001 sf 20.66% Impervious Runoff Depth>0.89"
Flow Length=535' Slope=0.0600 '/' Tc=8.9 min UI Adjusted CN=73 Runoff=1.69 cfs 0.132 af

SubcatchmentPost 1g: Post 1g

Runoff Area=34,971 sf 47.68% Impervious Runoff Depth>1.56"
Flow Length=605' Slope=0.0230 '/' Tc=12.3 min CN=84 Runoff=1.28 cfs 0.105 af

SubcatchmentPost 2a: Post 2a

Runoff Area=689,243 sf 14.11% Impervious Runoff Depth>0.65"
Flow Length=863' Slope=0.0640 '/' Tc=14.9 min UI Adjusted CN=68 Runoff=8.67 cfs 0.863 af

SubcatchmentPost 2b: Post 2b

Runoff Area=12,743 sf 13.17% Impervious Runoff Depth>0.46"
Flow Length=242' Slope=0.0270 '/' Tc=9.2 min UI Adjusted CN=63 Runoff=0.11 cfs 0.011 af

SubcatchmentPost 2c: Post 2c

Runoff Area=56,127 sf 22.11% Impervious Runoff Depth>1.00"
Flow Length=499' Slope=0.0300 '/' Tc=11.2 min UI Adjusted CN=75 Runoff=1.32 cfs 0.107 af

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SubcatchmentPost 2d: Post 2d

Runoff Area=11,684 sf 92.94% Impervious Runoff Depth>2.69"
Flow Length=739' Slope=0.0220 '/' Tc=8.5 min CN=97 Runoff=0.75 cfs 0.060 af

SubcatchmentPost 3a: Post 3a

Runoff Area=221,701 sf 0.39% Impervious Runoff Depth>1.05"
Flow Length=522' Slope=0.0960 '/' Tc=6.9 min CN=76 Runoff=6.35 cfs 0.447 af

SubcatchmentPost 3b: Post 3b

Runoff Area=7,576 sf 100.00% Impervious Runoff Depth>2.77"
Flow Length=570' Slope=0.0280 '/' Tc=6.0 min CN=98 Runoff=0.53 cfs 0.040 af

SubcatchmentPost 3c: Post 3c

Runoff Area=14,201 sf 78.95% Impervious Runoff Depth>2.13"
Flow Length=571' Slope=0.0280 '/' Tc=8.2 min CN=91 Runoff=0.78 cfs 0.058 af

SubcatchmentPost 4a: Post 4a

Runoff Area=5,922 sf 23.96% Impervious Runoff Depth>0.46"
Flow Length=105' Slope=0.0250 '/' Tc=6.0 min UI Adjusted CN=63 Runoff=0.06 cfs 0.005 af

SubcatchmentPost 4b: Post 4b

Runoff Area=5,403 sf 20.97% Impervious Runoff Depth>0.46"
Flow Length=112' Slope=0.0490 '/' Tc=6.0 min UI Adjusted CN=63 Runoff=0.05 cfs 0.005 af

Reach FILTER STRIP 1A-1: FILTER STRIP 1A-1

Avg. Flow Depth=0.15' Max Vel=0.19 fps Inflow=0.31 cfs 0.031 af
n=0.400 L=194.0' S=0.0567 '/' Capacity=2.83 cfs Outflow=0.21 cfs 0.030 af

Reach FILTER STRIP 1A-2: FILTER STRIP 1A-2

Avg. Flow Depth=0.11' Max Vel=0.17 fps Inflow=0.45 cfs 0.033 af
n=0.400 L=202.0' S=0.0743 '/' Capacity=7.62 cfs Outflow=0.27 cfs 0.033 af

Reach FILTER STRIP 1A-3: FILTER STRIP 1A-3

Avg. Flow Depth=0.20' Max Vel=0.27 fps Inflow=0.94 cfs 0.146 af
n=0.400 L=177.0' S=0.0791 '/' Capacity=6.70 cfs Outflow=0.91 cfs 0.146 af

Reach FILTER STRIP 2A: FILTER STRIP 2A

Avg. Flow Depth=0.31' Max Vel=0.15 fps Inflow=1.68 cfs 0.162 af
n=0.400 L=106.0' S=0.0142 '/' Capacity=3.97 cfs Outflow=1.39 cfs 0.160 af

Reach Filter Strip 2B: Filter Strip 2B

Avg. Flow Depth=0.08' Max Vel=0.15 fps Inflow=0.11 cfs 0.011 af
n=0.240 L=225.0' S=0.0311 '/' Capacity=3.50 cfs Outflow=0.06 cfs 0.011 af

Reach Post: Post

Inflow=7.83 cfs 1.186 af
Outflow=7.83 cfs 1.186 af

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Page 7

Reach Post East: Post East

Inflow=7.28 cfs 0.545 af

Outflow=7.28 cfs 0.545 af

Reach Post West: Post West Pond

Inflow=3.95 cfs 0.641 af

Outflow=3.95 cfs 0.641 af

Reach Stream: IntermittentStream

Avg. Flow Depth=0.35' Max Vel=0.95 fps Inflow=1.29 cfs 0.098 af
n=0.040 L=438.0' S=0.0048 '/ Capacity=5.56 cfs Outflow=1.05 cfs 0.097 af

Pond BASIN 1: BASIN 1

Peak Elev=267.04' Storage=516 cf Inflow=0.23 cfs 0.030 af
Discarded=0.04 cfs 0.022 af Primary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.023 af

Pond BASIN 2: BASIN 2

Peak Elev=268.50' Storage=399 cf Inflow=0.24 cfs 0.032 af
Discarded=0.05 cfs 0.031 af Primary=0.00 cfs 0.000 af Outflow=0.05 cfs 0.031 af

Pond BASIN 3: BASIN 3

Peak Elev=267.77' Storage=280 cf Inflow=1.32 cfs 0.107 af
Discarded=0.01 cfs 0.004 af Primary=1.11 cfs 0.102 af Outflow=1.13 cfs 0.107 af

Pond BASIN 4: BASIN 4

Peak Elev=269.24' Storage=3,086 cf Inflow=2.95 cfs 0.236 af
Discarded=0.14 cfs 0.075 af Primary=0.94 cfs 0.146 af Secondary=0.00 cfs 0.000 af Outflow=1.08 cfs 0.221 af

Pond CB P1: CB P1

Peak Elev=272.66' Inflow=0.11 cfs 0.011 af
12.0" Round Culvert n=0.012 L=150.0' S=0.0100 '/ Outflow=0.11 cfs 0.011 af

Pond CB P2: CB P2

Peak Elev=265.86' Inflow=0.31 cfs 0.031 af
12.0" Round Culvert n=0.013 L=10.0' S=0.0100 '/ Outflow=0.31 cfs 0.031 af

Pond CB P3: CB P3

Peak Elev=267.07' Inflow=0.45 cfs 0.033 af
12.0" Round Culvert n=0.012 L=10.0' S=0.0100 '/ Outflow=0.45 cfs 0.033 af

Pond CB P4: CB P4

Peak Elev=269.25' Inflow=1.28 cfs 0.105 af
12.0" Round Culvert n=0.012 L=30.0' S=0.0100 '/ Outflow=1.28 cfs 0.105 af

Pond CB P5: CB P5

Peak Elev=265.99' Inflow=0.53 cfs 0.040 af
12.0" Round Culvert n=0.012 L=5.0' S=0.0100 '/ Outflow=0.53 cfs 0.040 af

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Page 8

Pond CB P6: CB P6

Peak Elev=266.06' Inflow=0.78 cfs 0.058 af
12.0" Round Culvert n=0.012 L=5.0' S=0.0100 '/' Outflow=0.78 cfs 0.058 af

Pond House Infiltration: House Infiltration

Peak Elev=270.37' Storage=228 cf Inflow=0.15 cfs 0.011 af
Outflow=0.01 cfs 0.008 af

Pond Post Existing Pond: Existing Pond

Peak Elev=263.13' Storage=45,005 cf Inflow=10.01 cfs 1.034 af
Outflow=0.00 cfs 0.000 af

Pond Stormceptor1: Stormceptor1

Peak Elev=265.53' Inflow=0.31 cfs 0.031 af
12.0" Round Culvert n=0.013 L=80.0' S=0.0050 '/' Outflow=0.31 cfs 0.031 af

Pond Stormceptor2: Stormceptor2

Peak Elev=266.15' Inflow=0.45 cfs 0.033 af
12.0" Round Culvert n=0.012 L=50.0' S=0.0100 '/' Outflow=0.45 cfs 0.033 af

Pond Stormceptor3: Stormceptor3

Peak Elev=267.12' Inflow=1.68 cfs 0.162 af
12.0" Round Culvert n=0.012 L=40.0' S=0.0100 '/' Outflow=1.68 cfs 0.162 af

Pond Stormceptor4: Stormceptor4

Peak Elev=267.35' Inflow=0.94 cfs 0.146 af
12.0" Round Culvert n=0.012 L=40.0' S=0.0150 '/' Outflow=0.94 cfs 0.146 af

Pond STORMCEPTOR5: STORMCEPTOR5

Peak Elev=265.92' Inflow=1.29 cfs 0.098 af
12.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=1.29 cfs 0.098 af

Total Runoff Area = 45.037 ac Runoff Volume = 2.392 af Average Runoff Depth = 0.64"
85.36% Pervious = 38.444 ac 14.64% Impervious = 6.593 ac

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Page 9

Summary for Subcatchment House: House

Runoff = 0.15 cfs @ 12.09 hrs, Volume= 0.011 af, Depth> 2.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.20"

Area (sf)	CN	Description
2,100	98	Unconnected pavement, HSG A
* 0	98	Unconnected pavement, HSG B
0	98	Unconnected pavement, HSG C
0	98	Unconnected pavement, HSG D
0	32	Woods/grass comb., Good, HSG A
0	39	>75% Grass cover, Good, HSG A
0	58	Woods/grass comb., Good, HSG B
0	61	>75% Grass cover, Good, HSG B
0	72	Woods/grass comb., Good, HSG C
0	74	>75% Grass cover, Good, HSG C
0	79	Woods/grass comb., Good, HSG D
0	80	>75% Grass cover, Good, HSG D
2,100	98	Weighted Average
2,100	98	100.00% Impervious Area
2,100		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	30	0.3000	3.01		Lag/CN Method, Houses
0.2	30	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Post 1a: Post 1a

Runoff = 2.67 cfs @ 12.48 hrs, Volume= 0.423 af, Depth> 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.20"

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Type III 24-hr 2-YR Rainfall=3.20"

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Page 10

Area (sf)	CN	Adj	Description
3,464	98		Unconnected pavement, HSG A
66,368	98		Unconnected pavement, HSG B
6,212	98		Unconnected pavement, HSG C
0	98		Unconnected pavement, HSG D
46,666	32		Woods/grass comb., Good, HSG A
73,867	39		>75% Grass cover, Good, HSG A
158,275	58		Woods/grass comb., Good, HSG B
258,651	61		>75% Grass cover, Good, HSG B
61,008	72		Woods/grass comb., Good, HSG C
16,255	74		>75% Grass cover, Good, HSG C
0	79		Woods/grass comb., Good, HSG D
0	80		>75% Grass cover, Good, HSG D
690,766	61	59	Weighted Average, UI Adjusted
614,722	57	57	88.99% Pervious Area
76,044	98	98	11.01% Impervious Area
76,044			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.1	936	0.0530	0.71		Lag/CN Method, Post 1a

Summary for Subcatchment Post 1b: Post 1b

Runoff = 0.23 cfs @ 12.18 hrs, Volume= 0.030 af, Depth> 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.20"

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Type III 24-hr 2-YR Rainfall=3.20"

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Page 11

Area (sf)	CN	Adj	Description		
3,067	98		Unconnected pavement, HSG A		
5,058	98		Unconnected pavement, HSG B		
0	98		Unconnected pavement, HSG C		
0	98		Unconnected pavement, HSG D		
0	32		Woods/grass comb., Good, HSG A		
11,103	39		>75% Grass cover, Good, HSG A		
0	58		Woods/grass comb., Good, HSG B		
29,804	61		>75% Grass cover, Good, HSG B		
0	72		Woods/grass comb., Good, HSG C		
0	74		>75% Grass cover, Good, HSG C		
0	79		Woods/grass comb., Good, HSG D		
0	80		>75% Grass cover, Good, HSG D		
49,032	62	59	Weighted Average, UI Adjusted		
40,907	55	55	83.43% Pervious Area		
8,125	98	98	16.57% Impervious Area		
8,125			100.00% Unconnected		
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.8	264	0.0530	0.56	Lag/CN Method, Post 1d	

Summary for Subcatchment Post 1c: Post 1c

Runoff = 0.31 cfs @ 12.21 hrs, Volume= 0.031 af, Depth> 0.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.20"

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Page 12

Area (sf)	CN	Adj	Description
1,896	98		Unconnected pavement, HSG A
6,460	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
0	98		Unconnected pavement, HSG D
0	32		Woods/grass comb., Good, HSG A
21	39		>75% Grass cover, Good, HSG A
0	58		Woods/grass comb., Good, HSG B
19,738	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
0	79		Woods/grass comb., Good, HSG D
0	80		>75% Grass cover, Good, HSG D
28,115	72	66	Weighted Average, UI Adjusted
19,759	61	61	70.28% Pervious Area
8,356	98	98	29.72% Impervious Area
8,356			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	497	0.0330	0.66		Lag/CN Method, Post 1c

Summary for Subcatchment Post 1d: Post 1d

Runoff = 0.24 cfs @ 12.30 hrs, Volume= 0.032 af, Depth> 0.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 13

Area (sf)	CN	Adj	Description
2,113	98		Unconnected pavement, HSG A
6,061	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
141	98		Unconnected pavement, HSG D
0	32		Woods/grass comb., Good, HSG A
9,211	39		>75% Grass cover, Good, HSG A
0	58		Woods/grass comb., Good, HSG B
28,313	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
0	79		Woods/grass comb., Good, HSG D
821	80		>75% Grass cover, Good, HSG D
46,660	64	60	Weighted Average, UI Adjusted
38,345	56	56	82.18% Pervious Area
8,315	98	98	17.82% Impervious Area
8,315			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.5	445	0.0370	0.55		Lag/CN Method, Post 1d

Summary for Subcatchment Post 1e: Post 1e

Runoff = 0.45 cfs @ 12.12 hrs, Volume= 0.033 af, Depth> 2.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 14

Area (sf)	CN	Description
2,800	98	Unconnected pavement, HSG A
4,424	98	Unconnected pavement, HSG B
0	98	Unconnected pavement, HSG C
0	98	Unconnected pavement, HSG D
0	32	Woods/grass comb., Good, HSG A
809	39	>75% Grass cover, Good, HSG A
0	58	Woods/grass comb., Good, HSG B
533	61	>75% Grass cover, Good, HSG B
0	72	Woods/grass comb., Good, HSG C
0	74	>75% Grass cover, Good, HSG C
0	79	Woods/grass comb., Good, HSG D
0	80	>75% Grass cover, Good, HSG D
8,566	90	Weighted Average
1,342	48	15.67% Pervious Area
7,224	98	84.33% Impervious Area
7,224		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	335	0.0130	0.68		Lag/CN Method, Post 1e

Summary for Subcatchment Post 1f: Post 1f

Runoff = 1.69 cfs @ 12.14 hrs, Volume= 0.132 af, Depth> 0.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 15

Area (sf)	CN	Adj	Description
0	98		Unconnected pavement, HSG A
9,773	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
6,135	98		Unconnected pavement, HSG D
0	32		Woods/grass comb., Good, HSG A
0	39		>75% Grass cover, Good, HSG A
2,765	58		Woods/grass comb., Good, HSG B
29,605	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
8,761	79		Woods/grass comb., Good, HSG D
19,962	80		>75% Grass cover, Good, HSG D
77,001	76	73	Weighted Average, UI Adjusted
61,093	70	70	79.34% Pervious Area
15,908	98	98	20.66% Impervious Area
15,908			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	535	0.0600	1.00		Lag/CN Method, Post 1f

Summary for Subcatchment Post 1g: Post 1g

Runoff = 1.28 cfs @ 12.17 hrs, Volume= 0.105 af, Depth> 1.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 16

Area (sf)	CN	Description
0	98	Unconnected pavement, HSG A
10,065	98	Unconnected pavement, HSG B
0	98	Unconnected pavement, HSG C
6,608	98	Unconnected pavement, HSG D
0	32	Woods/grass comb., Good, HSG A
0	39	>75% Grass cover, Good, HSG A
0	58	Woods/grass comb., Good, HSG B
8,268	61	>75% Grass cover, Good, HSG B
0	72	Woods/grass comb., Good, HSG C
0	74	>75% Grass cover, Good, HSG C
264	79	Woods/grass comb., Good, HSG D
9,766	80	>75% Grass cover, Good, HSG D
34,971	84	Weighted Average
18,298	71	52.32% Pervious Area
16,673	98	47.68% Impervious Area
16,673		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	605	0.0230	0.82		Lag/CN Method, Post 1g

Summary for Subcatchment Post 2a: Post 2a

Runoff = 8.67 cfs @ 12.24 hrs, Volume= 0.863 af, Depth> 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 17

Area (sf)	CN	Adj	Description
0	98		Unconnected pavement, HSG A
61,228	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
36,052	98		Unconnected pavement, HSG D
0	32		Woods/grass comb., Good, HSG A
0	39		>75% Grass cover, Good, HSG A
197,068	58		Woods/grass comb., Good, HSG B
213,835	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
78,890	79		Woods/grass comb., Good, HSG D
102,170	80		>75% Grass cover, Good, HSG D
689,243	70	68	Weighted Average, UI Adjusted
591,963	66	66	85.89% Pervious Area
97,280	98	98	14.11% Impervious Area
97,280			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.9	863	0.0640	0.97		Lag/CN Method, Post 2a

Summary for Subcatchment Post 2b: Post 2b

Runoff = 0.11 cfs @ 12.17 hrs, Volume= 0.011 af, Depth> 0.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 18

Area (sf)	CN	Adj	Description
0	98		Unconnected pavement, HSG A
1,678	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
0	98		Unconnected pavement, HSG D
0	32		Woods/grass comb., Good, HSG A
0	39		>75% Grass cover, Good, HSG A
0	58		Woods/grass comb., Good, HSG B
11,065	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
0	79		Woods/grass comb., Good, HSG D
0	80		>75% Grass cover, Good, HSG D
12,743	66	63	Weighted Average, UI Adjusted
11,065	61	61	86.83% Pervious Area
1,678	98	98	13.17% Impervious Area
1,678			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	242	0.0270	0.44		Lag/CN Method, Post 2b

Summary for Subcatchment Post 2c: Post 2c

Runoff = 1.32 cfs @ 12.17 hrs, Volume= 0.107 af, Depth> 1.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 19

Area (sf)	CN	Adj	Description
0	98		Unconnected pavement, HSG A
2,740	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
9,668	98		Unconnected pavement, HSG D
0	32		Woods/grass comb., Good, HSG A
0	39		>75% Grass cover, Good, HSG A
0	58		Woods/grass comb., Good, HSG B
18,069	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
0	79		Woods/grass comb., Good, HSG D
25,650	80		>75% Grass cover, Good, HSG D
56,127	78	75	Weighted Average, UI Adjusted
43,719	72	72	77.89% Pervious Area
12,408	98	98	22.11% Impervious Area
12,408			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	499	0.0300	0.74		Lag/CN Method, Post 2c

Summary for Subcatchment Post 2d: Post 2d

Runoff = 0.75 cfs @ 12.12 hrs, Volume= 0.060 af, Depth> 2.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 20

Area (sf)	CN	Description
0	98	Unconnected pavement, HSG A
4,136	98	Unconnected pavement, HSG B
0	98	Unconnected pavement, HSG C
6,723	98	Unconnected pavement, HSG D
0	32	Woods/grass comb., Good, HSG A
0	39	>75% Grass cover, Good, HSG A
0	58	Woods/grass comb., Good, HSG B
0	61	>75% Grass cover, Good, HSG B
0	72	Woods/grass comb., Good, HSG C
0	74	>75% Grass cover, Good, HSG C
0	79	Woods/grass comb., Good, HSG D
825	80	>75% Grass cover, Good, HSG D
11,684	97	Weighted Average
825	80	7.06% Pervious Area
10,859	98	92.94% Impervious Area
10,859		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	739	0.0220	1.46		Lag/CN Method, Post 2d

Summary for Subcatchment Post 3a: Post 3a

Runoff = 6.35 cfs @ 12.11 hrs, Volume= 0.447 af, Depth> 1.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 21

Area (sf)	CN	Description			
0	98	Unconnected pavement, HSG A			
0	98	Unconnected pavement, HSG B			
0	98	Unconnected pavement, HSG C			
866	98	Unconnected pavement, HSG D			
0	32	Woods/grass comb., Good, HSG A			
0	39	>75% Grass cover, Good, HSG A			
27,594	58	Woods/grass comb., Good, HSG B			
4,601	61	>75% Grass cover, Good, HSG B			
0	72	Woods/grass comb., Good, HSG C			
0	74	>75% Grass cover, Good, HSG C			
167,810	79	Woods/grass comb., Good, HSG D			
20,830	80	>75% Grass cover, Good, HSG D			
221,701	76	Weighted Average			
220,835	76	99.61% Pervious Area			
866	98	0.39% Impervious Area			
866		100.00% Unconnected			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	522	0.0960	1.26		Lag/CN Method, Post 3a

Summary for Subcatchment Post 3b: Post 3b

Runoff = 0.53 cfs @ 12.09 hrs, Volume= 0.040 af, Depth> 2.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 22

Area (sf)	CN	Description
0	98	Unconnected pavement, HSG A
7,576	98	Unconnected pavement, HSG B
0	98	Unconnected pavement, HSG C
0	98	Unconnected pavement, HSG D
0	32	Woods/grass comb., Good, HSG A
0	39	>75% Grass cover, Good, HSG A
0	58	Woods/grass comb., Good, HSG B
0	61	>75% Grass cover, Good, HSG B
0	72	Woods/grass comb., Good, HSG C
0	74	>75% Grass cover, Good, HSG C
0	79	Woods/grass comb., Good, HSG D
0	80	>75% Grass cover, Good, HSG D
7,576	98	Weighted Average
7,576	98	100.00% Impervious Area
7,576		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	570	0.0280	1.66		Lag/CN Method, Post 3b
5.7	570	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Post 3c: Post 3c

Runoff = 0.78 cfs @ 12.11 hrs, Volume= 0.058 af, Depth> 2.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 23

Area (sf)	CN	Description
0	98	Unconnected pavement, HSG A
10,644	98	Unconnected pavement, HSG B
0	98	Unconnected pavement, HSG C
568	98	Unconnected pavement, HSG D
0	32	Woods/grass comb., Good, HSG A
0	39	>75% Grass cover, Good, HSG A
0	58	Woods/grass comb., Good, HSG B
2,771	61	>75% Grass cover, Good, HSG B
0	72	Woods/grass comb., Good, HSG C
0	74	>75% Grass cover, Good, HSG C
0	79	Woods/grass comb., Good, HSG D
218	80	>75% Grass cover, Good, HSG D
14,201	91	Weighted Average
2,989	62	21.05% Pervious Area
11,212	98	78.95% Impervious Area
11,212		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	571	0.0280	1.17		Lag/CN Method, Post 3c

Summary for Subcatchment Post 4a: Post 4a

Runoff = 0.06 cfs @ 12.12 hrs, Volume= 0.005 af, Depth> 0.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 24

Area (sf)	CN	Adj	Description
0	98		Unconnected pavement, HSG A
1,419	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
0	98		Unconnected pavement, HSG D
0	32		Woods/grass comb., Good, HSG A
0	39		>75% Grass cover, Good, HSG A
3,696	58		Woods/grass comb., Good, HSG B
807	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
0	79		Woods/grass comb., Good, HSG D
0	80		>75% Grass cover, Good, HSG D
5,922	68	63	Weighted Average, UI Adjusted
4,503	59	59	76.04% Pervious Area
1,419	98	98	23.96% Impervious Area
1,419			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	105	0.0250	0.38		Lag/CN Method, Post 4a
4.7	105	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Post 4b: Post 4b

Runoff = 0.05 cfs @ 12.12 hrs, Volume= 0.005 af, Depth> 0.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 25

Area (sf)	CN	Adj	Description
0	98		Unconnected pavement, HSG A
1,133	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
0	98		Unconnected pavement, HSG D
0	32		Woods/grass comb., Good, HSG A
0	39		>75% Grass cover, Good, HSG A
3,625	58		Woods/grass comb., Good, HSG B
645	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
0	79		Woods/grass comb., Good, HSG D
0	80		>75% Grass cover, Good, HSG D
5,403	67	63	Weighted Average, UI Adjusted
4,270	58	58	79.03% Pervious Area
1,133	98	98	20.97% Impervious Area
1,133			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	112	0.0490	0.52		Lag/CN Method, Post 4b
3.6	112	Total, Increased to minimum Tc = 6.0 min			

Summary for Reach FILTER STRIP 1A-1: FILTER STRIP 1A-1

Inflow Area = 1.771 ac, 21.36% Impervious, Inflow Depth > 0.21" for 2-YR event
 Inflow = 0.31 cfs @ 12.21 hrs, Volume= 0.031 af
 Outflow = 0.21 cfs @ 12.46 hrs, Volume= 0.030 af, Atten= 33%, Lag= 14.9 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 0.19 fps, Min. Travel Time= 17.0 min
 Avg. Velocity = 0.11 fps, Avg. Travel Time= 29.6 min

Peak Storage= 213 cf @ 12.46 hrs
 Average Depth at Peak Storage= 0.15'
 Bank-Full Depth= 0.50' Flow Area= 6.7 sf, Capacity= 2.83 cfs

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Page 26

20.00' x 0.50' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush

Length= 194.0' Slope= 0.0567 '/'

Inlet Invert= 265.00', Outlet Invert= 254.00'



Summary for Reach FILTER STRIP 1A-2: FILTER STRIP 1A-2

Inflow Area = 1.268 ac, 28.14% Impervious, Inflow Depth > 0.32" for 2-YR event

Inflow = 0.45 cfs @ 12.11 hrs, Volume= 0.033 af

Outflow = 0.27 cfs @ 12.26 hrs, Volume= 0.033 af, Atten= 40%, Lag= 8.8 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.17 fps, Min. Travel Time= 19.3 min

Avg. Velocity = 0.07 fps, Avg. Travel Time= 46.9 min

Peak Storage= 315 cf @ 12.26 hrs

Average Depth at Peak Storage= 0.11'

Bank-Full Depth= 0.50' Flow Area= 15.7 sf, Capacity= 7.62 cfs

47.00' x 0.50' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush

Length= 202.0' Slope= 0.0743 '/'

Inlet Invert= 266.00', Outlet Invert= 251.00'



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Page 27

Summary for Reach FILTER STRIP 1A-3: FILTER STRIP 1A-3

Inflow Area = 2.571 ac, 29.10% Impervious, Inflow Depth > 0.68" for 2-YR event
Inflow = 0.94 cfs @ 12.53 hrs, Volume= 0.146 af
Outflow = 0.91 cfs @ 12.71 hrs, Volume= 0.146 af, Atten= 4%, Lag= 10.9 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.27 fps, Min. Travel Time= 10.9 min
Avg. Velocity = 0.15 fps, Avg. Travel Time= 20.3 min

Peak Storage= 590 cf @ 12.71 hrs
Average Depth at Peak Storage= 0.20'
Bank-Full Depth= 0.50' Flow Area= 13.3 sf, Capacity= 6.70 cfs

40.00' x 0.50' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush
Length= 177.0' Slope= 0.0791 '/'
Inlet Invert= 267.00', Outlet Invert= 253.00'



Summary for Reach FILTER STRIP 2A: FILTER STRIP 2A

Inflow Area = 1.557 ac, 34.31% Impervious, Inflow Depth > 1.25" for 2-YR event
Inflow = 1.68 cfs @ 12.17 hrs, Volume= 0.162 af
Outflow = 1.39 cfs @ 12.33 hrs, Volume= 0.160 af, Atten= 18%, Lag= 9.9 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.15 fps, Min. Travel Time= 11.5 min
Avg. Velocity = 0.06 fps, Avg. Travel Time= 29.4 min

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Page 28

Peak Storage= 956 cf @ 12.33 hrs
Average Depth at Peak Storage= 0.31'
Bank-Full Depth= 0.50' Flow Area= 18.7 sf, Capacity= 3.97 cfs

56.00' x 0.50' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush
Length= 106.0' Slope= 0.0142 '/'
Inlet Invert= 266.00', Outlet Invert= 264.50'



Summary for Reach Filter Strip 2B: Filter Strip 2B

Inflow Area = 0.293 ac, 13.17% Impervious, Inflow Depth > 0.46" for 2-YR event
Inflow = 0.11 cfs @ 12.17 hrs, Volume= 0.011 af
Outflow = 0.06 cfs @ 12.51 hrs, Volume= 0.011 af, Atten= 47%, Lag= 20.2 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.15 fps, Min. Travel Time= 25.0 min
Avg. Velocity = 0.09 fps, Avg. Travel Time= 40.0 min

Peak Storage= 90 cf @ 12.51 hrs
Average Depth at Peak Storage= 0.08'
Bank-Full Depth= 0.50' Flow Area= 6.7 sf, Capacity= 3.50 cfs

20.00' x 0.50' deep Parabolic Channel, n= 0.240 Sheet flow over Dense Grass
Length= 225.0' Slope= 0.0311 '/'
Inlet Invert= 271.00', Outlet Invert= 264.00'

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Page 29



Summary for Reach Post: Post

Inflow Area = 44.989 ac, 14.55% Impervious, Inflow Depth > 0.32" for 2-YR event
Inflow = 7.83 cfs @ 12.13 hrs, Volume= 1.186 af
Outflow = 7.83 cfs @ 12.13 hrs, Volume= 1.186 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach Post East: Post East

Inflow Area = 23.262 ac, 14.00% Impervious, Inflow Depth > 0.28" for 2-YR event
Inflow = 7.28 cfs @ 12.11 hrs, Volume= 0.545 af
Outflow = 7.28 cfs @ 12.11 hrs, Volume= 0.545 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach Post West: Post West Pond

Inflow Area = 21.727 ac, 15.13% Impervious, Inflow Depth > 0.35" for 2-YR event
Inflow = 3.95 cfs @ 12.49 hrs, Volume= 0.641 af
Outflow = 3.95 cfs @ 12.49 hrs, Volume= 0.641 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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Page 30

Summary for Reach Stream: Intermittent Stream

Inflow Area = 0.500 ac, 86.27% Impervious, Inflow Depth > 2.35" for 2-YR event
Inflow = 1.29 cfs @ 12.10 hrs, Volume= 0.098 af
Outflow = 1.05 cfs @ 12.17 hrs, Volume= 0.097 af, Atten= 19%, Lag= 4.2 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.95 fps, Min. Travel Time= 7.7 min

Avg. Velocity = 0.36 fps, Avg. Travel Time= 20.0 min

Peak Storage= 479 cf @ 12.17 hrs

Average Depth at Peak Storage= 0.35'

Bank-Full Depth= 0.75' Flow Area= 3.5 sf, Capacity= 5.56 cfs

7.00' x 0.75' deep Parabolic Channel, n= 0.040 Winding stream, pools & shoals

Length= 438.0' Slope= 0.0048 '/'

Inlet Invert= 265.10', Outlet Invert= 263.00'



Summary for Pond BASIN 1: BASIN 1

Inflow Area = 1.126 ac, 16.57% Impervious, Inflow Depth > 0.32" for 2-YR event
Inflow = 0.23 cfs @ 12.18 hrs, Volume= 0.030 af
Outflow = 0.04 cfs @ 15.15 hrs, Volume= 0.023 af, Atten= 83%, Lag= 177.9 min
Discarded = 0.04 cfs @ 15.15 hrs, Volume= 0.022 af
Primary = 0.00 cfs @ 15.15 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 267.04' @ 15.15 hrs Surf.Area= 652 sf Storage= 516 cf

Plug-Flow detention time= 161.6 min calculated for 0.022 af (74% of inflow)

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Page 31

Center-of-Mass det. time= 95.3 min (961.9 - 866.6)

Volume	Invert	Avail.Storage	Storage Description
#1	266.00'	2,116 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
266.00	358	0	0
267.00	624	491	491
268.00	1,341	983	1,474
268.40	1,873	643	2,116

Device	Routing	Invert	Outlet Devices
#1	Discarded	266.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	268.00'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	267.00'	4.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=0.04 cfs @ 15.15 hrs HW=267.04' (Free Discharge)

└─**1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.00 cfs @ 15.15 hrs HW=267.04' TW=265.33' (Dynamic Tailwater)

└─**2=Orifice/Grate** (Controls 0.00 cfs)

└─**3=Orifice/Grate** (Orifice Controls 0.00 cfs @ 0.68 fps)

Summary for Pond BASIN 2: BASIN 2

Inflow Area =	1.071 ac, 17.82% Impervious, Inflow Depth > 0.35" for 2-YR event
Inflow =	0.24 cfs @ 12.30 hrs, Volume= 0.032 af
Outflow =	0.05 cfs @ 14.08 hrs, Volume= 0.031 af, Atten= 78%, Lag= 106.7 min
Discarded =	0.05 cfs @ 14.08 hrs, Volume= 0.031 af
Primary =	0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 268.50' @ 14.08 hrs Surf.Area= 934 sf Storage= 399 cf

Plug-Flow detention time=91.7 min calculated for 0.031 af (99% of inflow)

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Page 32

Center-of-Mass det. time= 87.1 min (953.3 - 866.2)

Volume	Invert	Avail.Storage	Storage Description
#1	268.00'	2,728 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
268.00	660	0	0
269.00	1,207	934	934
270.00	2,382	1,795	2,728

Device	Routing	Invert	Outlet Devices
#1	Discarded	268.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	269.00'	15.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.05 cfs @ 14.08 hrs HW=268.50' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=268.00' TW=265.50' (Dynamic Tailwater)

↑**2=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond BASIN 3: BASIN 3

Inflow Area = 1.288 ac, 22.11% Impervious, Inflow Depth > 1.00" for 2-YR event
 Inflow = 1.32 cfs @ 12.17 hrs, Volume= 0.107 af
 Outflow = 1.13 cfs @ 12.25 hrs, Volume= 0.107 af, Atten= 14%, Lag= 4.9 min
 Discarded = 0.01 cfs @ 12.25 hrs, Volume= 0.004 af
 Primary = 1.11 cfs @ 12.25 hrs, Volume= 0.102 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 267.77' @ 12.25 hrs Surf.Area= 569 sf Storage= 280 cf

Plug-Flow detention time=4.8 min calculated for 0.106 af (99% of inflow)
 Center-of-Mass det. time= 3.4 min (823.3 - 819.9)

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Page 33

Volume	Invert	Avail.Storage	Storage Description
#1	267.00'	2,181 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
267.00	157	0	0
268.00	690	424	424
269.00	1,309	1,000	1,423
269.50	1,722	758	2,181

Device	Routing	Invert	Outlet Devices
#1	Discarded	267.00'	1.000 in/hr Exfiltration over Surface area
#2	Primary	269.00'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	267.00'	8.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=0.01 cfs @ 12.25 hrs HW=267.77' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)**Primary OutFlow** Max=1.11 cfs @ 12.25 hrs HW=267.77' TW=267.09' (Dynamic Tailwater)↑**2=Orifice/Grate** (Controls 0.00 cfs)↑**3=Orifice/Grate** (Orifice Controls 1.11 cfs @ 3.19 fps)**Summary for Pond BASIN 4: BASIN 4**

Inflow Area = 2.571 ac, 29.10% Impervious, Inflow Depth > 1.10" for 2-YR event
 Inflow = 2.95 cfs @ 12.15 hrs, Volume= 0.236 af
 Outflow = 1.08 cfs @ 12.53 hrs, Volume= 0.221 af, Atten= 63%, Lag= 22.7 min
 Discarded = 0.14 cfs @ 12.53 hrs, Volume= 0.075 af
 Primary = 0.94 cfs @ 12.53 hrs, Volume= 0.146 af
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 269.24' @ 12.53 hrs Surf.Area= 2,458 sf Storage= 3,086 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 33.0 min (845.1 - 812.0)

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Page 34

Volume	Invert	Avail.Storage	Storage Description
#1	267.50'	9,305 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
267.50	913	0	0
268.00	1,570	621	621
269.00	2,243	1,907	2,527
270.00	3,149	2,696	5,223
271.00	5,014	4,082	9,305

Device	Routing	Invert	Outlet Devices
#1	Discarded	267.50'	2.410 in/hr Exfiltration over Surface area
#2	Secondary	269.50'	15.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	268.00'	6.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=0.14 cfs @ 12.53 hrs HW=269.24' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.14 cfs)

Primary OutFlow Max=0.94 cfs @ 12.53 hrs HW=269.24' TW=267.35' (Dynamic Tailwater)

↑**3=Orifice/Grate** (Orifice Controls 0.94 cfs @ 4.78 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=267.50' TW=266.60' (Dynamic Tailwater)

↑**2=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond CB P1: CB P1

Inflow Area = 0.293 ac, 13.17% Impervious, Inflow Depth > 0.46" for 2-YR event
Inflow = 0.11 cfs @ 12.17 hrs, Volume= 0.011 af
Outflow = 0.11 cfs @ 12.17 hrs, Volume= 0.011 af, Atten= 0%, Lag= 0.0 min
Primary = 0.11 cfs @ 12.17 hrs, Volume= 0.011 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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Page 35

Peak Elev= 272.66' @ 12.17 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	272.50'	12.0" Round 12" Culvert L= 150.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.50' / 271.00' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.11 cfs @ 12.17 hrs HW=272.66' TW=271.05' (Dynamic Tailwater)
↑**1=12" Culvert** (Inlet Controls 0.11 cfs @ 1.36 fps)

Summary for Pond CB P2: CB P2

Inflow Area = 0.645 ac, 29.72% Impervious, Inflow Depth > 0.57" for 2-YR event
Inflow = 0.31 cfs @ 12.21 hrs, Volume= 0.031 af
Outflow = 0.31 cfs @ 12.21 hrs, Volume= 0.031 af, Atten= 0%, Lag= 0.0 min
Primary = 0.31 cfs @ 12.21 hrs, Volume= 0.031 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 265.86' @ 12.21 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	265.55'	12.0" Round Culvert L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 265.55' / 265.45' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.31 cfs @ 12.21 hrs HW=265.86' TW=265.53' (Dynamic Tailwater)
↑**1=Culvert** (Barrel Controls 0.31 cfs @ 2.27 fps)

Summary for Pond CB P3: CB P3

Inflow Area = 0.197 ac, 84.33% Impervious, Inflow Depth > 2.04" for 2-YR event
Inflow = 0.45 cfs @ 12.12 hrs, Volume= 0.033 af
Outflow = 0.45 cfs @ 12.12 hrs, Volume= 0.033 af, Atten= 0%, Lag= 0.0 min
Primary = 0.45 cfs @ 12.12 hrs, Volume= 0.033 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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Page 36

Peak Elev= 267.07' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	266.70'	12.0" Round 12" Culvert L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 266.70' / 266.60' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.44 cfs @ 12.12 hrs HW=267.07' TW=266.14' (Dynamic Tailwater)
↑**1=12" Culvert** (Barrel Controls 0.44 cfs @ 2.50 fps)

Summary for Pond CB P4: CB P4

Inflow Area = 0.803 ac, 47.68% Impervious, Inflow Depth > 1.56" for 2-YR event
Inflow = 1.28 cfs @ 12.17 hrs, Volume= 0.105 af
Outflow = 1.28 cfs @ 12.17 hrs, Volume= 0.105 af, Atten= 0%, Lag= 0.0 min
Primary = 1.28 cfs @ 12.17 hrs, Volume= 0.105 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 269.25' @ 12.56 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	267.90'	12.0" Round 12" Culvert L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 267.90' / 267.60' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.26 cfs @ 12.17 hrs HW=268.74' TW=268.73' (Dynamic Tailwater)
↑**1=12" Culvert** (Outlet Controls 0.26 cfs @ 0.51 fps)

Summary for Pond CB P5: CB P5

Inflow Area = 0.174 ac, 100.00% Impervious, Inflow Depth > 2.77" for 2-YR event
Inflow = 0.53 cfs @ 12.09 hrs, Volume= 0.040 af
Outflow = 0.53 cfs @ 12.09 hrs, Volume= 0.040 af, Atten= 0%, Lag= 0.0 min
Primary = 0.53 cfs @ 12.09 hrs, Volume= 0.040 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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Page 37

Peak Elev= 265.99' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	265.50'	12.0" Round Culvert L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 265.50' / 265.45' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.34 cfs @ 12.09 hrs HW=265.95' TW=265.90' (Dynamic Tailwater)

↑**1=Culvert** (Outlet Controls 0.34 cfs @ 1.43 fps)

Summary for Pond CB P6: CB P6

Inflow Area = 0.326 ac, 78.95% Impervious, Inflow Depth > 2.13" for 2-YR event
Inflow = 0.78 cfs @ 12.11 hrs, Volume= 0.058 af
Outflow = 0.78 cfs @ 12.11 hrs, Volume= 0.058 af, Atten= 0%, Lag= 0.0 min
Primary = 0.78 cfs @ 12.11 hrs, Volume= 0.058 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 266.06' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	265.50'	12.0" Round Culvert L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 265.50' / 265.45' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.69 cfs @ 12.11 hrs HW=266.04' TW=265.90' (Dynamic Tailwater)

↑**1=Culvert** (Outlet Controls 0.69 cfs @ 2.31 fps)

Summary for Pond House Infiltration: House Infiltration

Inflow Area = 0.048 ac, 100.00% Impervious, Inflow Depth > 2.77" for 2-YR event
Inflow = 0.15 cfs @ 12.09 hrs, Volume= 0.011 af
Outflow = 0.01 cfs @ 11.25 hrs, Volume= 0.008 af, Atten= 95%, Lag= 0.0 min
Discarded = 0.01 cfs @ 11.25 hrs, Volume= 0.008 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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Page 38

Peak Elev= 270.37' @ 13.99 hrs Surf.Area= 330 sf Storage= 228 cf

Plug-Flow detention time= 156.1 min calculated for 0.008 af (71% of inflow)
Center-of-Mass det. time= 90.8 min (829.4 - 738.6)

Volume	Invert	Avail.Storage	Storage Description
#1	270.00'	373 cf	ADS_StormTech SC-740 x 8 Inside #2 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 2 rows
#2	269.00'	445 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 1,485 cf Overall - 373 cf Embedded = 1,112 cf x 40.0% Voids
		818 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
269.00	330	0	0
273.50	330	1,485	1,485

Device	Routing	Invert	Outlet Devices
#1	Discarded	269.00'	1.040 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.01 cfs @ 11.25 hrs HW=269.05' (Free Discharge)
↑ **1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Summary for Pond Post Existing Pond: Existing Pond

Inflow Area = 17.672 ac, 15.88% Impervious, Inflow Depth > 0.70" for 2-YR event
Inflow = 10.01 cfs @ 12.25 hrs, Volume= 1.034 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 263.13' @ 20.00 hrs Surf.Area= 48,534 sf Storage= 45,005 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

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Page 39

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	262.00'	64,223 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
262.00	31,406	0	0
263.50	54,224	64,223	64,223

Device	Routing	Invert	Outlet Devices
#1	Primary	263.30'	70.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=262.00' TW=0.00' (Dynamic Tailwater)↑**1=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)**Summary for Pond Stormceptor 1: Stormceptor 1**

Inflow Area = 1.771 ac, 21.36% Impervious, Inflow Depth > 0.21" for 2-YR event
 Inflow = 0.31 cfs @ 12.21 hrs, Volume= 0.031 af
 Outflow = 0.31 cfs @ 12.21 hrs, Volume= 0.031 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.31 cfs @ 12.21 hrs, Volume= 0.031 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 265.53' @ 12.22 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	265.20'	12.0" Round 12" Culvert L= 80.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 265.20' / 264.80' S= 0.0050 ' / ' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.30 cfs @ 12.21 hrs HW=265.53' TW=265.11' (Dynamic Tailwater)↑**1=12" Culvert** (Outlet Controls 0.30 cfs @ 2.00 fps)

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Page 40

Summary for Pond Stormceptor 2: Stormceptor 2

Inflow Area = 1.268 ac, 28.14% Impervious, Inflow Depth > 0.32" for 2-YR event
Inflow = 0.45 cfs @ 12.12 hrs, Volume= 0.033 af
Outflow = 0.45 cfs @ 12.11 hrs, Volume= 0.033 af, Atten= 0%, Lag= 0.0 min
Primary = 0.45 cfs @ 12.11 hrs, Volume= 0.033 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 266.15' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	265.50'	12.0" Round 12" Culvert L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 265.50' / 265.00' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.40 cfs @ 12.11 hrs HW=266.14' TW=266.09' (Dynamic Tailwater)
↑**1=12" Culvert** (Outlet Controls 0.40 cfs @ 1.07 fps)

Summary for Pond Stormceptor 3: Stormceptor 3

Inflow Area = 1.557 ac, 34.31% Impervious, Inflow Depth > 1.25" for 2-YR event
Inflow = 1.68 cfs @ 12.17 hrs, Volume= 0.162 af
Outflow = 1.68 cfs @ 12.17 hrs, Volume= 0.162 af, Atten= 0%, Lag= 0.0 min
Primary = 1.68 cfs @ 12.17 hrs, Volume= 0.162 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 267.12' @ 12.17 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	266.40'	12.0" Round 12" Culvert L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 266.40' / 266.00' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.66 cfs @ 12.17 hrs HW=267.12' TW=266.27' (Dynamic Tailwater)
↑**1=12" Culvert** (Barrel Controls 1.66 cfs @ 3.86 fps)

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Page 41

Summary for Pond Stormceptor 4: Stormceptor 4

Inflow Area = 2.571 ac, 29.10% Impervious, Inflow Depth > 0.68" for 2-YR event
Inflow = 0.94 cfs @ 12.53 hrs, Volume= 0.146 af
Outflow = 0.94 cfs @ 12.53 hrs, Volume= 0.146 af, Atten= 0%, Lag= 0.0 min
Primary = 0.94 cfs @ 12.53 hrs, Volume= 0.146 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 267.35' @ 12.61 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	266.60'	12.0" Round 12" Culvert L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 266.60' / 266.00' S= 0.0150 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.93 cfs @ 12.53 hrs HW=267.35' TW=267.19' (Dynamic Tailwater)

↑**1=12" Culvert** (Outlet Controls 0.93 cfs @ 2.03 fps)

Summary for Pond STORMCEPTOR 5: STORMCEPTOR 5

Inflow Area = 0.500 ac, 86.27% Impervious, Inflow Depth > 2.35" for 2-YR event
Inflow = 1.29 cfs @ 12.10 hrs, Volume= 0.098 af
Outflow = 1.29 cfs @ 12.10 hrs, Volume= 0.098 af, Atten= 0%, Lag= 0.0 min
Primary = 1.29 cfs @ 12.10 hrs, Volume= 0.098 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 265.92' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	265.20'	12.0" Round Culvert L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 265.20' / 265.10' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.28 cfs @ 12.10 hrs HW=265.91' TW=265.42' (Dynamic Tailwater)

↑**1=Culvert** (Barrel Controls 1.28 cfs @ 2.99 fps)

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Page 42

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentHouse: House

Runoff Area=2,100 sf 100.00% Impervious Runoff Depth>4.05"
Flow Length=30' Slope=0.3000 '/' Tc=6.0 min CN=98 Runoff=0.21 cfs 0.016 af

SubcatchmentPost 1a: Post 1a

Runoff Area=690,766 sf 11.01% Impervious Runoff Depth>0.90"
Flow Length=936' Slope=0.0530 '/' Tc=22.1 min UI Adjusted CN=59 Runoff=10.25 cfs 1.191 af

SubcatchmentPost 1b: Post 1b

Runoff Area=49,032 sf 16.57% Impervious Runoff Depth>0.91"
Flow Length=264' Slope=0.0530 '/' Tc=7.8 min UI Adjusted CN=59 Runoff=1.03 cfs 0.085 af

SubcatchmentPost 1c: Post 1c

Runoff Area=28,115 sf 29.72% Impervious Runoff Depth>1.33"
Flow Length=497' Slope=0.0330 '/' Tc=12.6 min UI Adjusted CN=66 Runoff=0.83 cfs 0.071 af

SubcatchmentPost 1d: Post 1d

Runoff Area=46,660 sf 17.82% Impervious Runoff Depth>0.96"
Flow Length=445' Slope=0.0370 '/' Tc=13.5 min UI Adjusted CN=60 Runoff=0.90 cfs 0.086 af

SubcatchmentPost 1e: Post 1e

Runoff Area=8,566 sf 84.33% Impervious Runoff Depth>3.30"
Flow Length=335' Slope=0.0130 '/' Tc=8.2 min CN=90 Runoff=0.72 cfs 0.054 af

SubcatchmentPost 1f: Post 1f

Runoff Area=77,001 sf 20.66% Impervious Runoff Depth>1.82"
Flow Length=535' Slope=0.0600 '/' Tc=8.9 min UI Adjusted CN=73 Runoff=3.58 cfs 0.268 af

SubcatchmentPost 1g: Post 1g

Runoff Area=34,971 sf 47.68% Impervious Runoff Depth>2.72"
Flow Length=605' Slope=0.0230 '/' Tc=12.3 min CN=84 Runoff=2.21 cfs 0.182 af

SubcatchmentPost 2a: Post 2a

Runoff Area=689,243 sf 14.11% Impervious Runoff Depth>1.46"
Flow Length=863' Slope=0.0640 '/' Tc=14.9 min UI Adjusted CN=68 Runoff=21.41 cfs 1.923 af

SubcatchmentPost 2b: Post 2b

Runoff Area=12,743 sf 13.17% Impervious Runoff Depth>1.14"
Flow Length=242' Slope=0.0270 '/' Tc=9.2 min UI Adjusted CN=63 Runoff=0.35 cfs 0.028 af

SubcatchmentPost 2c: Post 2c

Runoff Area=56,127 sf 22.11% Impervious Runoff Depth>1.97"
Flow Length=499' Slope=0.0300 '/' Tc=11.2 min UI Adjusted CN=75 Runoff=2.67 cfs 0.211 af

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Page 43

SubcatchmentPost 2d: Post 2d

Runoff Area=11,684 sf 92.94% Impervious Runoff Depth>3.97"
Flow Length=739' Slope=0.0220 '/' Tc=8.5 min CN=97 Runoff=1.09 cfs 0.089 af

SubcatchmentPost 3a: Post 3a

Runoff Area=221,701 sf 0.39% Impervious Runoff Depth>2.05"
Flow Length=522' Slope=0.0960 '/' Tc=6.9 min CN=76 Runoff=12.57 cfs 0.869 af

SubcatchmentPost 3b: Post 3b

Runoff Area=7,576 sf 100.00% Impervious Runoff Depth>4.05"
Flow Length=570' Slope=0.0280 '/' Tc=6.0 min CN=98 Runoff=0.76 cfs 0.059 af

SubcatchmentPost 3c: Post 3c

Runoff Area=14,201 sf 78.95% Impervious Runoff Depth>3.40"
Flow Length=571' Slope=0.0280 '/' Tc=8.2 min CN=91 Runoff=1.21 cfs 0.092 af

SubcatchmentPost 4a: Post 4a

Runoff Area=5,922 sf 23.96% Impervious Runoff Depth>1.14"
Flow Length=105' Slope=0.0250 '/' Tc=6.0 min UI Adjusted CN=63 Runoff=0.18 cfs 0.013 af

SubcatchmentPost 4b: Post 4b

Runoff Area=5,403 sf 20.97% Impervious Runoff Depth>1.14"
Flow Length=112' Slope=0.0490 '/' Tc=6.0 min UI Adjusted CN=63 Runoff=0.16 cfs 0.012 af

Reach FILTER STRIP 1A-1: FILTER STRIP 1A-1

Avg. Flow Depth=0.28' Max Vel=0.29 fps Inflow=0.97 cfs 0.117 af
n=0.400 L=194.0' S=0.0567 '/' Capacity=2.83 cfs Outflow=0.80 cfs 0.115 af

Reach FILTER STRIP 1A-2: FILTER STRIP 1A-2

Avg. Flow Depth=0.14' Max Vel=0.21 fps Inflow=0.71 cfs 0.079 af
n=0.400 L=202.0' S=0.0743 '/' Capacity=7.62 cfs Outflow=0.50 cfs 0.079 af

Reach FILTER STRIP 1A-3: FILTER STRIP 1A-3

Avg. Flow Depth=0.36' Max Vel=0.40 fps Inflow=3.84 cfs 0.341 af
n=0.400 L=177.0' S=0.0791 '/' Capacity=6.70 cfs Outflow=3.28 cfs 0.339 af

Reach FILTER STRIP 2A: FILTER STRIP 2A

Avg. Flow Depth=0.39' Max Vel=0.18 fps Inflow=2.61 cfs 0.293 af
n=0.400 L=106.0' S=0.0142 '/' Capacity=3.97 cfs Outflow=2.31 cfs 0.290 af

Reach Filter Strip 2B: Filter Strip 2B

Avg. Flow Depth=0.14' Max Vel=0.22 fps Inflow=0.35 cfs 0.028 af
n=0.240 L=225.0' S=0.0311 '/' Capacity=3.50 cfs Outflow=0.21 cfs 0.027 af

Reach Post: Post

Inflow=21.44 cfs 3.743 af
Outflow=21.44 cfs 3.743 af

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Page 44

Reach Post East: Post East

Inflow=14.02 cfs 1.994 af

Outflow=14.02 cfs 1.994 af

Reach Post West: Post West Pond

Inflow=14.86 cfs 1.748 af

Outflow=14.86 cfs 1.748 af

Reach Stream: IntermittentStream

Avg. Flow Depth=0.42' Max Vel=1.09 fps Inflow=1.96 cfs 0.151 af
n=0.040 L=438.0' S=0.0048 '/ Capacity=5.56 cfs Outflow=1.64 cfs 0.150 af

Pond BASIN 1: BASIN 1

Peak Elev=267.64' Storage=1,041 cf Inflow=1.03 cfs 0.085 af
Discarded=0.06 cfs 0.028 af Primary=0.29 cfs 0.045 af Outflow=0.35 cfs 0.073 af

Pond BASIN 2: BASIN 2

Peak Elev=269.10' Storage=1,065 cf Inflow=0.90 cfs 0.086 af
Discarded=0.07 cfs 0.045 af Primary=0.43 cfs 0.025 af Outflow=0.50 cfs 0.070 af

Pond BASIN 3: BASIN 3

Peak Elev=268.54' Storage=884 cf Inflow=2.67 cfs 0.211 af
Discarded=0.02 cfs 0.006 af Primary=1.84 cfs 0.205 af Outflow=1.87 cfs 0.211 af

Pond BASIN 4: BASIN 4

Peak Elev=269.85' Storage=4,756 cf Inflow=5.73 cfs 0.450 af
Discarded=0.17 cfs 0.090 af Primary=1.20 cfs 0.268 af Secondary=2.64 cfs 0.073 af Outflow=4.00 cfs 0.431 af

Pond CB P1: CB P1

Peak Elev=272.79' Inflow=0.35 cfs 0.028 af
12.0" Round Culvert n=0.012 L=150.0' S=0.0100 '/ Outflow=0.35 cfs 0.028 af

Pond CB P2: CB P2

Peak Elev=266.08' Inflow=0.83 cfs 0.071 af
12.0" Round Culvert n=0.013 L=10.0' S=0.0100 '/ Outflow=0.83 cfs 0.071 af

Pond CB P3: CB P3

Peak Elev=267.19' Inflow=0.72 cfs 0.054 af
12.0" Round Culvert n=0.012 L=10.0' S=0.0100 '/ Outflow=0.72 cfs 0.054 af

Pond CB P4: CB P4

Peak Elev=270.02' Inflow=2.21 cfs 0.182 af
12.0" Round Culvert n=0.012 L=30.0' S=0.0100 '/ Outflow=2.21 cfs 0.182 af

Pond CB P5: CB P5

Peak Elev=266.19' Inflow=0.76 cfs 0.059 af
12.0" Round Culvert n=0.012 L=5.0' S=0.0100 '/ Outflow=0.76 cfs 0.059 af

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Page 45

Pond CB P6: CB P6

Peak Elev=266.28' Inflow=1.21 cfs 0.092 af
12.0" Round Culvert n=0.012 L=5.0' S=0.0100 '/' Outflow=1.21 cfs 0.092 af

Pond House Infiltration: House Infiltration

Peak Elev=271.03' Storage=392 cf Inflow=0.21 cfs 0.016 af
Outflow=0.01 cfs 0.009 af

Pond Post Existing Pond: Existing Pond

Peak Elev=263.37' Storage=57,496 cf Inflow=23.75 cfs 2.241 af
Outflow=3.28 cfs 0.975 af

Pond Stormceptor1: Stormceptor1

Peak Elev=265.79' Inflow=0.97 cfs 0.117 af
12.0" Round Culvert n=0.013 L=80.0' S=0.0050 '/' Outflow=0.97 cfs 0.117 af

Pond Stormceptor2: Stormceptor2

Peak Elev=266.22' Inflow=0.72 cfs 0.079 af
12.0" Round Culvert n=0.012 L=50.0' S=0.0100 '/' Outflow=0.71 cfs 0.079 af

Pond Stormceptor3: Stormceptor3

Peak Elev=267.38' Inflow=2.61 cfs 0.293 af
12.0" Round Culvert n=0.012 L=40.0' S=0.0100 '/' Outflow=2.61 cfs 0.293 af

Pond Stormceptor4: Stormceptor4

Peak Elev=268.31' Inflow=3.84 cfs 0.341 af
12.0" Round Culvert n=0.012 L=40.0' S=0.0150 '/' Outflow=3.84 cfs 0.341 af

Pond STORMCEPTOR5: STORMCEPTOR5

Peak Elev=266.13' Inflow=1.96 cfs 0.151 af
12.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=1.96 cfs 0.151 af

Total Runoff Area = 45.037 ac Runoff Volume = 5.248 af Average Runoff Depth = 1.40"
85.36% Pervious = 38.444 ac 14.64% Impervious = 6.593 ac

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Page 46

Summary for Subcatchment House: House

Runoff = 0.21 cfs @ 12.09 hrs, Volume= 0.016 af, Depth> 4.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
2,100	98	Unconnected pavement, HSG A
* 0	98	Unconnected pavement, HSG B
0	98	Unconnected pavement, HSG C
0	98	Unconnected pavement, HSG D
0	32	Woods/grass comb., Good, HSG A
0	39	>75% Grass cover, Good, HSG A
0	58	Woods/grass comb., Good, HSG B
0	61	>75% Grass cover, Good, HSG B
0	72	Woods/grass comb., Good, HSG C
0	74	>75% Grass cover, Good, HSG C
0	79	Woods/grass comb., Good, HSG D
0	80	>75% Grass cover, Good, HSG D
2,100	98	Weighted Average
2,100	98	100.00% Impervious Area
2,100		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	30	0.3000	3.01		Lag/CN Method, Houses
0.2	30	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Post 1a: Post 1a

Runoff = 10.25 cfs @ 12.36 hrs, Volume= 1.191 af, Depth> 0.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 47

Area (sf)	CN	Adj	Description
3,464	98		Unconnected pavement, HSG A
66,368	98		Unconnected pavement, HSG B
6,212	98		Unconnected pavement, HSG C
0	98		Unconnected pavement, HSG D
46,666	32		Woods/grass comb., Good, HSG A
73,867	39		>75% Grass cover, Good, HSG A
158,275	58		Woods/grass comb., Good, HSG B
258,651	61		>75% Grass cover, Good, HSG B
61,008	72		Woods/grass comb., Good, HSG C
16,255	74		>75% Grass cover, Good, HSG C
0	79		Woods/grass comb., Good, HSG D
0	80		>75% Grass cover, Good, HSG D
690,766	61	59	Weighted Average, UI Adjusted
614,722	57	57	88.99% Pervious Area
76,044	98	98	11.01% Impervious Area
76,044			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.1	936	0.0530	0.71		Lag/CN Method, Post 1a

Summary for Subcatchment Post 1b: Post 1b

Runoff = 1.03 cfs @ 12.13 hrs, Volume= 0.085 af, Depth> 0.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 48

Area (sf)	CN	Adj	Description
3,067	98		Unconnected pavement, HSG A
5,058	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
0	98		Unconnected pavement, HSG D
0	32		Woods/grass comb., Good, HSG A
11,103	39		>75% Grass cover, Good, HSG A
0	58		Woods/grass comb., Good, HSG B
29,804	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
0	79		Woods/grass comb., Good, HSG D
0	80		>75% Grass cover, Good, HSG D
49,032	62	59	Weighted Average, UI Adjusted
40,907	55	55	83.43% Pervious Area
8,125	98	98	16.57% Impervious Area
8,125			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.8	264	0.0530	0.56		Lag/CN Method, Post 1d

Summary for Subcatchment Post 1c: Post 1c

Runoff = 0.83 cfs @ 12.19 hrs, Volume= 0.071 af, Depth> 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.60"

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Page 49

Area (sf)	CN	Adj	Description
1,896	98		Unconnected pavement, HSG A
6,460	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
0	98		Unconnected pavement, HSG D
0	32		Woods/grass comb., Good, HSG A
21	39		>75% Grass cover, Good, HSG A
0	58		Woods/grass comb., Good, HSG B
19,738	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
0	79		Woods/grass comb., Good, HSG D
0	80		>75% Grass cover, Good, HSG D
28,115	72	66	Weighted Average, UI Adjusted
19,759	61	61	70.28% Pervious Area
8,356	98	98	29.72% Impervious Area
8,356			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	497	0.0330	0.66		Lag/CN Method, Post 1c

Summary for Subcatchment Post 1d: Post 1d

Runoff = 0.90 cfs @ 12.22 hrs, Volume= 0.086 af, Depth> 0.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.60"

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Page 50

Area (sf)	CN	Adj	Description
2,113	98		Unconnected pavement, HSG A
6,061	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
141	98		Unconnected pavement, HSG D
0	32		Woods/grass comb., Good, HSG A
9,211	39		>75% Grass cover, Good, HSG A
0	58		Woods/grass comb., Good, HSG B
28,313	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
0	79		Woods/grass comb., Good, HSG D
821	80		>75% Grass cover, Good, HSG D
46,660	64	60	Weighted Average, UI Adjusted
38,345	56	56	82.18% Pervious Area
8,315	98	98	17.82% Impervious Area
8,315			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.5	445	0.0370	0.55		Lag/CN Method, Post 1d

Summary for Subcatchment Post 1e: Post 1e

Runoff = 0.72 cfs @ 12.11 hrs, Volume= 0.054 af, Depth> 3.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 51

Area (sf)	CN	Description
2,800	98	Unconnected pavement, HSG A
4,424	98	Unconnected pavement, HSG B
0	98	Unconnected pavement, HSG C
0	98	Unconnected pavement, HSG D
0	32	Woods/grass comb., Good, HSG A
809	39	>75% Grass cover, Good, HSG A
0	58	Woods/grass comb., Good, HSG B
533	61	>75% Grass cover, Good, HSG B
0	72	Woods/grass comb., Good, HSG C
0	74	>75% Grass cover, Good, HSG C
0	79	Woods/grass comb., Good, HSG D
0	80	>75% Grass cover, Good, HSG D
8,566	90	Weighted Average
1,342	48	15.67% Pervious Area
7,224	98	84.33% Impervious Area
7,224		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	335	0.0130	0.68		Lag/CN Method, Post 1e

Summary for Subcatchment Post 1f: Post 1f

Runoff = 3.58 cfs @ 12.13 hrs, Volume= 0.268 af, Depth> 1.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 52

Area (sf)	CN	Adj	Description
0	98		Unconnected pavement, HSG A
9,773	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
6,135	98		Unconnected pavement, HSG D
0	32		Woods/grass comb., Good, HSG A
0	39		>75% Grass cover, Good, HSG A
2,765	58		Woods/grass comb., Good, HSG B
29,605	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
8,761	79		Woods/grass comb., Good, HSG D
19,962	80		>75% Grass cover, Good, HSG D
77,001	76	73	Weighted Average, UI Adjusted
61,093	70	70	79.34% Pervious Area
15,908	98	98	20.66% Impervious Area
15,908			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	535	0.0600	1.00		Lag/CN Method, Post 1f

Summary for Subcatchment Post 1g: Post 1g

Runoff = 2.21 cfs @ 12.17 hrs, Volume= 0.182 af, Depth> 2.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 53

Area (sf)	CN	Description
0	98	Unconnected pavement, HSG A
10,065	98	Unconnected pavement, HSG B
0	98	Unconnected pavement, HSG C
6,608	98	Unconnected pavement, HSG D
0	32	Woods/grass comb., Good, HSG A
0	39	>75% Grass cover, Good, HSG A
0	58	Woods/grass comb., Good, HSG B
8,268	61	>75% Grass cover, Good, HSG B
0	72	Woods/grass comb., Good, HSG C
0	74	>75% Grass cover, Good, HSG C
264	79	Woods/grass comb., Good, HSG D
9,766	80	>75% Grass cover, Good, HSG D
34,971	84	Weighted Average
18,298	71	52.32% Pervious Area
16,673	98	47.68% Impervious Area
16,673		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	605	0.0230	0.82		Lag/CN Method, Post 1g

Summary for Subcatchment Post 2a: Post 2a

Runoff = 21.41 cfs @ 12.22 hrs, Volume= 1.923 af, Depth> 1.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 54

Area (sf)	CN	Adj	Description
0	98		Unconnected pavement, HSG A
61,228	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
36,052	98		Unconnected pavement, HSG D
0	32		Woods/grass comb., Good, HSG A
0	39		>75% Grass cover, Good, HSG A
197,068	58		Woods/grass comb., Good, HSG B
213,835	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
78,890	79		Woods/grass comb., Good, HSG D
102,170	80		>75% Grass cover, Good, HSG D
689,243	70	68	Weighted Average, UI Adjusted
591,963	66	66	85.89% Pervious Area
97,280	98	98	14.11% Impervious Area
97,280			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.9	863	0.0640	0.97		Lag/CN Method, Post 2a

Summary for Subcatchment Post 2b: Post 2b

Runoff = 0.35 cfs @ 12.15 hrs, Volume= 0.028 af, Depth> 1.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 55

Area (sf)	CN	Adj	Description
0	98		Unconnected pavement, HSG A
1,678	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
0	98		Unconnected pavement, HSG D
0	32		Woods/grass comb., Good, HSG A
0	39		>75% Grass cover, Good, HSG A
0	58		Woods/grass comb., Good, HSG B
11,065	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
0	79		Woods/grass comb., Good, HSG D
0	80		>75% Grass cover, Good, HSG D
12,743	66	63	Weighted Average, UI Adjusted
11,065	61	61	86.83% Pervious Area
1,678	98	98	13.17% Impervious Area
1,678			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	242	0.0270	0.44		Lag/CN Method, Post 2b

Summary for Subcatchment Post 2c: Post 2c

Runoff = 2.67 cfs @ 12.16 hrs, Volume= 0.211 af, Depth> 1.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 56

Area (sf)	CN	Adj	Description
0	98		Unconnected pavement, HSG A
2,740	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
9,668	98		Unconnected pavement, HSG D
0	32		Woods/grass comb., Good, HSG A
0	39		>75% Grass cover, Good, HSG A
0	58		Woods/grass comb., Good, HSG B
18,069	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
0	79		Woods/grass comb., Good, HSG D
25,650	80		>75% Grass cover, Good, HSG D
56,127	78	75	Weighted Average, UI Adjusted
43,719	72	72	77.89% Pervious Area
12,408	98	98	22.11% Impervious Area
12,408			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	499	0.0300	0.74		Lag/CN Method, Post 2c

Summary for Subcatchment Post 2d: Post 2d

Runoff = 1.09 cfs @ 12.12 hrs, Volume= 0.089 af, Depth> 3.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 57

Area (sf)	CN	Description
0	98	Unconnected pavement, HSG A
4,136	98	Unconnected pavement, HSG B
0	98	Unconnected pavement, HSG C
6,723	98	Unconnected pavement, HSG D
0	32	Woods/grass comb., Good, HSG A
0	39	>75% Grass cover, Good, HSG A
0	58	Woods/grass comb., Good, HSG B
0	61	>75% Grass cover, Good, HSG B
0	72	Woods/grass comb., Good, HSG C
0	74	>75% Grass cover, Good, HSG C
0	79	Woods/grass comb., Good, HSG D
825	80	>75% Grass cover, Good, HSG D
11,684	97	Weighted Average
825	80	7.06% Pervious Area
10,859	98	92.94% Impervious Area
10,859		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	739	0.0220	1.46		Lag/CN Method, Post 2d

Summary for Subcatchment Post 3a: Post 3a

Runoff = 12.57 cfs @ 12.10 hrs, Volume= 0.869 af, Depth> 2.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 58

Area (sf)	CN	Description			
0	98	Unconnected pavement, HSG A			
0	98	Unconnected pavement, HSG B			
0	98	Unconnected pavement, HSG C			
866	98	Unconnected pavement, HSG D			
0	32	Woods/grass comb., Good, HSG A			
0	39	>75% Grass cover, Good, HSG A			
27,594	58	Woods/grass comb., Good, HSG B			
4,601	61	>75% Grass cover, Good, HSG B			
0	72	Woods/grass comb., Good, HSG C			
0	74	>75% Grass cover, Good, HSG C			
167,810	79	Woods/grass comb., Good, HSG D			
20,830	80	>75% Grass cover, Good, HSG D			
221,701	76	Weighted Average			
220,835	76	99.61% Pervious Area			
866	98	0.39% Impervious Area			
866		100.00% Unconnected			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	522	0.0960	1.26		Lag/CN Method, Post 3a

Summary for Subcatchment Post 3b: Post 3b

Runoff = 0.76 cfs @ 12.09 hrs, Volume= 0.059 af, Depth> 4.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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Page 59

Area (sf)	CN	Description
0	98	Unconnected pavement, HSG A
7,576	98	Unconnected pavement, HSG B
0	98	Unconnected pavement, HSG C
0	98	Unconnected pavement, HSG D
0	32	Woods/grass comb., Good, HSG A
0	39	>75% Grass cover, Good, HSG A
0	58	Woods/grass comb., Good, HSG B
0	61	>75% Grass cover, Good, HSG B
0	72	Woods/grass comb., Good, HSG C
0	74	>75% Grass cover, Good, HSG C
0	79	Woods/grass comb., Good, HSG D
0	80	>75% Grass cover, Good, HSG D
7,576	98	Weighted Average
7,576	98	100.00% Impervious Area
7,576		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	570	0.0280	1.66		Lag/CN Method, Post 3b
5.7	570	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Post 3c: Post 3c

Runoff = 1.21 cfs @ 12.11 hrs, Volume= 0.092 af, Depth> 3.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 60

Area (sf)	CN	Description
0	98	Unconnected pavement, HSG A
10,644	98	Unconnected pavement, HSG B
0	98	Unconnected pavement, HSG C
568	98	Unconnected pavement, HSG D
0	32	Woods/grass comb., Good, HSG A
0	39	>75% Grass cover, Good, HSG A
0	58	Woods/grass comb., Good, HSG B
2,771	61	>75% Grass cover, Good, HSG B
0	72	Woods/grass comb., Good, HSG C
0	74	>75% Grass cover, Good, HSG C
0	79	Woods/grass comb., Good, HSG D
218	80	>75% Grass cover, Good, HSG D
14,201	91	Weighted Average
2,989	62	21.05% Pervious Area
11,212	98	78.95% Impervious Area
11,212		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	571	0.0280	1.17		Lag/CN Method, Post 3c

Summary for Subcatchment Post 4a: Post 4a

Runoff = 0.18 cfs @ 12.10 hrs, Volume= 0.013 af, Depth> 1.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 61

Area (sf)	CN	Adj	Description
0	98		Unconnected pavement, HSG A
1,419	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
0	98		Unconnected pavement, HSG D
0	32		Woods/grass comb., Good, HSG A
0	39		>75% Grass cover, Good, HSG A
3,696	58		Woods/grass comb., Good, HSG B
807	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
0	79		Woods/grass comb., Good, HSG D
0	80		>75% Grass cover, Good, HSG D
5,922	68	63	Weighted Average, UI Adjusted
4,503	59	59	76.04% Pervious Area
1,419	98	98	23.96% Impervious Area
1,419			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	105	0.0250	0.38		Lag/CN Method, Post 4a
4.7	105	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Post 4b: Post 4b

Runoff = 0.16 cfs @ 12.10 hrs, Volume= 0.012 af, Depth> 1.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 62

Area (sf)	CN	Adj	Description
0	98		Unconnected pavement, HSG A
1,133	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
0	98		Unconnected pavement, HSG D
0	32		Woods/grass comb., Good, HSG A
0	39		>75% Grass cover, Good, HSG A
3,625	58		Woods/grass comb., Good, HSG B
645	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
0	79		Woods/grass comb., Good, HSG D
0	80		>75% Grass cover, Good, HSG D
5,403	67	63	Weighted Average, UI Adjusted
4,270	58	58	79.03% Pervious Area
1,133	98	98	20.97% Impervious Area
1,133			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	112	0.0490	0.52		Lag/CN Method, Post 4b
3.6	112	Total, Increased to minimum Tc = 6.0 min			

Summary for Reach FILTER STRIP 1A-1: FILTER STRIP 1A-1

Inflow Area = 1.771 ac, 21.36% Impervious, Inflow Depth > 0.79" for 10-YR event
 Inflow = 0.97 cfs @ 12.23 hrs, Volume= 0.117 af
 Outflow = 0.80 cfs @ 12.42 hrs, Volume= 0.115 af, Atten= 17%, Lag= 11.4 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 0.29 fps, Min. Travel Time= 11.2 min
 Avg. Velocity = 0.15 fps, Avg. Travel Time= 21.7 min

Peak Storage= 538 cf @ 12.42 hrs
 Average Depth at Peak Storage= 0.28'
 Bank-Full Depth= 0.50' Flow Area= 6.7 sf, Capacity= 2.83 cfs

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Page 63

20.00' x 0.50' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush

Length= 194.0' Slope= 0.0567 '/'

Inlet Invert= 265.00', Outlet Invert= 254.00'



Summary for Reach FILTER STRIP 1A-2: FILTER STRIP 1A-2

Inflow Area = 1.268 ac, 28.14% Impervious, Inflow Depth > 0.75" for 10-YR event

Inflow = 0.71 cfs @ 12.11 hrs, Volume= 0.079 af

Outflow = 0.50 cfs @ 12.62 hrs, Volume= 0.079 af, Atten= 30%, Lag= 30.1 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.21 fps, Min. Travel Time= 16.0 min

Avg. Velocity = 0.09 fps, Avg. Travel Time= 38.1 min

Peak Storage= 479 cf @ 12.62 hrs

Average Depth at Peak Storage= 0.14'

Bank-Full Depth= 0.50' Flow Area= 15.7 sf, Capacity= 7.62 cfs

47.00' x 0.50' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush

Length= 202.0' Slope= 0.0743 '/'

Inlet Invert= 266.00', Outlet Invert= 251.00'



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Page 64

Summary for Reach FILTER STRIP 1A-3: FILTER STRIP 1A-3

Inflow Area = 2.571 ac, 29.10% Impervious, Inflow Depth > 1.59" for 10-YR event
Inflow = 3.84 cfs @ 12.28 hrs, Volume= 0.341 af
Outflow = 3.28 cfs @ 12.40 hrs, Volume= 0.339 af, Atten= 15%, Lag= 6.9 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.40 fps, Min. Travel Time= 7.3 min
Avg. Velocity = 0.19 fps, Avg. Travel Time= 15.6 min

Peak Storage= 1,440 cf @ 12.40 hrs
Average Depth at Peak Storage= 0.36'
Bank-Full Depth= 0.50' Flow Area= 13.3 sf, Capacity= 6.70 cfs

40.00' x 0.50' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush
Length= 177.0' Slope= 0.0791 '/'
Inlet Invert= 267.00', Outlet Invert= 253.00'



Summary for Reach FILTER STRIP 2A: FILTER STRIP 2A

Inflow Area = 1.557 ac, 34.31% Impervious, Inflow Depth > 2.26" for 10-YR event
Inflow = 2.61 cfs @ 12.16 hrs, Volume= 0.293 af
Outflow = 2.31 cfs @ 12.34 hrs, Volume= 0.290 af, Atten= 11%, Lag= 11.1 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.18 fps, Min. Travel Time= 9.8 min
Avg. Velocity = 0.07 fps, Avg. Travel Time= 24.5 min

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Page 65

Peak Storage= 1,362 cf @ 12.34 hrs
Average Depth at Peak Storage= 0.39'
Bank-Full Depth= 0.50' Flow Area= 18.7 sf, Capacity= 3.97 cfs

56.00' x 0.50' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush
Length= 106.0' Slope= 0.0142 '/'
Inlet Invert= 266.00', Outlet Invert= 264.50'



Summary for Reach Filter Strip 2B: Filter Strip 2B

Inflow Area = 0.293 ac, 13.17% Impervious, Inflow Depth > 1.14" for 10-YR event
Inflow = 0.35 cfs @ 12.15 hrs, Volume= 0.028 af
Outflow = 0.21 cfs @ 12.34 hrs, Volume= 0.027 af, Atten= 38%, Lag= 11.8 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.22 fps, Min. Travel Time= 16.9 min
Avg. Velocity = 0.12 fps, Avg. Travel Time= 32.4 min

Peak Storage= 217 cf @ 12.34 hrs
Average Depth at Peak Storage= 0.14'
Bank-Full Depth= 0.50' Flow Area= 6.7 sf, Capacity= 3.50 cfs

20.00' x 0.50' deep Parabolic Channel, n= 0.240 Sheet flow over Dense Grass
Length= 225.0' Slope= 0.0311 '/'
Inlet Invert= 271.00', Outlet Invert= 264.00'

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Page 66



Summary for Reach Post: Post

Inflow Area = 44.989 ac, 14.55% Impervious, Inflow Depth > 1.00" for 10-YR event
Inflow = 21.44 cfs @ 12.32 hrs, Volume= 3.743 af
Outflow = 21.44 cfs @ 12.32 hrs, Volume= 3.743 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach Post East: Post East

Inflow Area = 23.262 ac, 14.00% Impervious, Inflow Depth > 1.03" for 10-YR event
Inflow = 14.02 cfs @ 12.11 hrs, Volume= 1.994 af
Outflow = 14.02 cfs @ 12.11 hrs, Volume= 1.994 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach Post West: Post West Pond

Inflow Area = 21.727 ac, 15.13% Impervious, Inflow Depth > 0.97" for 10-YR event
Inflow = 14.86 cfs @ 12.37 hrs, Volume= 1.748 af
Outflow = 14.86 cfs @ 12.37 hrs, Volume= 1.748 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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Page 67

Summary for Reach Stream: Intermittent Stream

Inflow Area = 0.500 ac, 86.27% Impervious, Inflow Depth > 3.62" for 10-YR event
Inflow = 1.96 cfs @ 12.10 hrs, Volume= 0.151 af
Outflow = 1.64 cfs @ 12.17 hrs, Volume= 0.150 af, Atten= 16%, Lag= 3.8 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.09 fps, Min. Travel Time= 6.7 min
Avg. Velocity = 0.42 fps, Avg. Travel Time= 17.3 min

Peak Storage= 653 cf @ 12.17 hrs
Average Depth at Peak Storage= 0.42'
Bank-Full Depth= 0.75' Flow Area= 3.5 sf, Capacity= 5.56 cfs

7.00' x 0.75' deep Parabolic Channel, n= 0.040 Winding stream, pools & shoals
Length= 438.0' Slope= 0.0048 '/'
Inlet Invert= 265.10', Outlet Invert= 263.00'



Summary for Pond BASIN 1: BASIN 1

Inflow Area = 1.126 ac, 16.57% Impervious, Inflow Depth > 0.91" for 10-YR event
Inflow = 1.03 cfs @ 12.13 hrs, Volume= 0.085 af
Outflow = 0.35 cfs @ 12.55 hrs, Volume= 0.073 af, Atten= 66%, Lag= 24.9 min
Discarded = 0.06 cfs @ 12.55 hrs, Volume= 0.028 af
Primary = 0.29 cfs @ 12.55 hrs, Volume= 0.045 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 267.64' @ 12.55 hrs Surf.Area= 1,086 sf Storage= 1,041 cf

Plug-Flow detention time= 75.4 min calculated for 0.073 af (86% of inflow)

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Page 68

Center-of-Mass det. time= 34.7 min (871.5 - 836.8)

Volume	Invert	Avail.Storage	Storage Description
#1	266.00'	2,116 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
266.00	358	0	0
267.00	624	491	491
268.00	1,341	983	1,474
268.40	1,873	643	2,116

Device	Routing	Invert	Outlet Devices
#1	Discarded	266.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	268.00'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	267.00'	4.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=0.06 cfs @ 12.55 hrs HW=267.64' (Free Discharge)

└─**1=Exfiltration** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=0.29 cfs @ 12.55 hrs HW=267.64' TW=265.70' (Dynamic Tailwater)

└─**2=Orifice/Grate** (Controls 0.00 cfs)

└─**3=Orifice/Grate** (Orifice Controls 0.29 cfs @ 3.33 fps)

Summary for Pond BASIN 2: BASIN 2

Inflow Area =	1.071 ac, 17.82% Impervious, Inflow Depth > 0.96" for 10-YR event
Inflow =	0.90 cfs @ 12.22 hrs, Volume= 0.086 af
Outflow =	0.50 cfs @ 12.53 hrs, Volume= 0.070 af, Atten= 44%, Lag= 19.1 min
Discarded =	0.07 cfs @ 12.53 hrs, Volume= 0.045 af
Primary =	0.43 cfs @ 12.53 hrs, Volume= 0.025 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 269.10' @ 12.53 hrs Surf.Area= 1,329 sf Storage= 1,065 cf

Plug-Flow detention time= 108.8 min calculated for 0.070 af (82% of inflow)

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Page 69

Center-of-Mass det. time= 58.1 min (896.6 - 838.5)

Volume	Invert	Avail.Storage	Storage Description
#1	268.00'	2,728 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
268.00	660	0	0
269.00	1,207	934	934
270.00	2,382	1,795	2,728

Device	Routing	Invert	Outlet Devices
#1	Discarded	268.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	269.00'	15.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.07 cfs @ 12.53 hrs HW=269.10' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.07 cfs)

Primary OutFlow Max=0.42 cfs @ 12.53 hrs HW=269.10' TW=266.22' (Dynamic Tailwater)

↑**2=Orifice/Grate** (Weir Controls 0.42 cfs @ 1.05 fps)

Summary for Pond BASIN 3: BASIN 3

Inflow Area = 1.288 ac, 22.11% Impervious, Inflow Depth > 1.97" for 10-YR event
 Inflow = 2.67 cfs @ 12.16 hrs, Volume= 0.211 af
 Outflow = 1.87 cfs @ 12.31 hrs, Volume= 0.211 af, Atten= 30%, Lag= 9.0 min
 Discarded = 0.02 cfs @ 12.30 hrs, Volume= 0.006 af
 Primary = 1.84 cfs @ 12.31 hrs, Volume= 0.205 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 268.54' @ 12.30 hrs Surf.Area= 1,023 sf Storage= 884 cf

Plug-Flow detention time= 5.4 min calculated for 0.210 af (99% of inflow)
 Center-of-Mass det. time= 4.4 min (809.1 - 804.8)

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Page 70

Volume	Invert	Avail.Storage	Storage Description
#1	267.00'	2,181 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
267.00	157	0	0
268.00	690	424	424
269.00	1,309	1,000	1,423
269.50	1,722	758	2,181

Device	Routing	Invert	Outlet Devices
#1	Discarded	267.00'	1.000 in/hr Exfiltration over Surface area
#2	Primary	269.00'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	267.00'	8.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=0.02 cfs @ 12.30 hrs HW=268.54' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=1.84 cfs @ 12.31 hrs HW=268.53' TW=267.31' (Dynamic Tailwater)

↑**2=Orifice/Grate** (Controls 0.00 cfs)

↑**3=Orifice/Grate** (Orifice Controls 1.84 cfs @ 5.27 fps)

Summary for Pond BASIN 4: BASIN 4

Inflow Area = 2.571 ac, 29.10% Impervious, Inflow Depth > 2.10" for 10-YR event
Inflow = 5.73 cfs @ 12.15 hrs, Volume= 0.450 af
Outflow = 4.00 cfs @ 12.28 hrs, Volume= 0.431 af, Atten= 30%, Lag= 8.3 min
Discarded = 0.17 cfs @ 12.29 hrs, Volume= 0.090 af
Primary = 1.20 cfs @ 12.28 hrs, Volume= 0.268 af
Secondary = 2.64 cfs @ 12.29 hrs, Volume= 0.073 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 269.85' @ 12.29 hrs Surf.Area= 3,012 sf Storage= 4,756 cf

Plug-Flow detention time=43.1 min calculated for 0.431 af (96% of inflow)
Center-of-Mass det. time= 27.9 min (826.3 - 798.4)

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Page 71

Volume	Invert	Avail.Storage	Storage Description
#1	267.50'	9,305 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
267.50	913	0	0
268.00	1,570	621	621
269.00	2,243	1,907	2,527
270.00	3,149	2,696	5,223
271.00	5,014	4,082	9,305

Device	Routing	Invert	Outlet Devices
#1	Discarded	267.50'	2.410 in/hr Exfiltration over Surface area
#2	Secondary	269.50'	15.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	268.00'	6.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=0.17 cfs @ 12.29 hrs HW=269.85' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.17 cfs)**Primary OutFlow** Max=1.19 cfs @ 12.28 hrs HW=269.84' TW=268.27' (Dynamic Tailwater)↑**3=Orifice/Grate** (Orifice Controls 1.19 cfs @ 6.05 fps)**Secondary OutFlow** Max=2.61 cfs @ 12.29 hrs HW=269.85' TW=268.28' (Dynamic Tailwater)↑**2=Orifice/Grate** (Weir Controls 2.61 cfs @ 1.92 fps)**Summary for Pond CB P1: CB P1**

Inflow Area = 0.293 ac, 13.17% Impervious, Inflow Depth > 1.14" for 10-YR event
 Inflow = 0.35 cfs @ 12.15 hrs, Volume= 0.028 af
 Outflow = 0.35 cfs @ 12.15 hrs, Volume= 0.028 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.35 cfs @ 12.15 hrs, Volume= 0.028 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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Printed 9/22/2016

Page 72

Peak Elev= 272.79' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	272.50'	12.0" Round 12" Culvert L= 150.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.50' / 271.00' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.35 cfs @ 12.15 hrs HW=272.79' TW=271.11' (Dynamic Tailwater)
↑**1=12" Culvert** (Inlet Controls 0.35 cfs @ 1.83 fps)

Summary for Pond CB P2: CB P2

Inflow Area = 0.645 ac, 29.72% Impervious, Inflow Depth > 1.33" for 10-YR event
Inflow = 0.83 cfs @ 12.19 hrs, Volume= 0.071 af
Outflow = 0.83 cfs @ 12.19 hrs, Volume= 0.071 af, Atten= 0%, Lag= 0.0 min
Primary = 0.83 cfs @ 12.19 hrs, Volume= 0.071 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 266.08' @ 12.19 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	265.55'	12.0" Round Culvert L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 265.55' / 265.45' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.82 cfs @ 12.19 hrs HW=266.08' TW=265.78' (Dynamic Tailwater)
↑**1=Culvert** (Barrel Controls 0.82 cfs @ 2.82 fps)

Summary for Pond CB P3: CB P3

Inflow Area = 0.197 ac, 84.33% Impervious, Inflow Depth > 3.30" for 10-YR event
Inflow = 0.72 cfs @ 12.11 hrs, Volume= 0.054 af
Outflow = 0.72 cfs @ 12.11 hrs, Volume= 0.054 af, Atten= 0%, Lag= 0.0 min
Primary = 0.72 cfs @ 12.11 hrs, Volume= 0.054 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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Page 73

Peak Elev= 267.19' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	266.70'	12.0" Round 12" Culvert L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 266.70' / 266.60' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.70 cfs @ 12.11 hrs HW=267.18' TW=266.22' (Dynamic Tailwater)
↑**1=12" Culvert** (Barrel Controls 0.70 cfs @ 2.75 fps)

Summary for Pond CB P4: CB P4

Inflow Area = 0.803 ac, 47.68% Impervious, Inflow Depth > 2.72" for 10-YR event
Inflow = 2.21 cfs @ 12.17 hrs, Volume= 0.182 af
Outflow = 2.21 cfs @ 12.17 hrs, Volume= 0.182 af, Atten= 0%, Lag= 0.0 min
Primary = 2.21 cfs @ 12.17 hrs, Volume= 0.182 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 270.02' @ 12.28 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	267.90'	12.0" Round 12" Culvert L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 267.90' / 267.60' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.02 cfs @ 12.17 hrs HW=269.71' TW=269.64' (Dynamic Tailwater)
↑**1=12" Culvert** (Inlet Controls 1.02 cfs @ 1.29 fps)

Summary for Pond CB P5: CB P5

Inflow Area = 0.174 ac, 100.00% Impervious, Inflow Depth > 4.05" for 10-YR event
Inflow = 0.76 cfs @ 12.09 hrs, Volume= 0.059 af
Outflow = 0.76 cfs @ 12.09 hrs, Volume= 0.059 af, Atten= 0%, Lag= 0.0 min
Primary = 0.76 cfs @ 12.09 hrs, Volume= 0.059 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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Page 74

Peak Elev= 266.19' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	265.50'	12.0" Round Culvert L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 265.50' / 265.45' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.18 cfs @ 12.09 hrs HW=266.11' TW=266.11' (Dynamic Tailwater)

↑**1=Culvert** (Outlet Controls 0.18 cfs @ 0.50 fps)

Summary for Pond CB P6: CB P6

Inflow Area = 0.326 ac, 78.95% Impervious, Inflow Depth > 3.40" for 10-YR event
Inflow = 1.21 cfs @ 12.11 hrs, Volume= 0.092 af
Outflow = 1.21 cfs @ 12.11 hrs, Volume= 0.092 af, Atten= 0%, Lag= 0.0 min
Primary = 1.21 cfs @ 12.11 hrs, Volume= 0.092 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 266.28' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	265.50'	12.0" Round Culvert L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 265.50' / 265.45' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.02 cfs @ 12.11 hrs HW=266.24' TW=266.11' (Dynamic Tailwater)

↑**1=Culvert** (Outlet Controls 1.02 cfs @ 2.28 fps)

Summary for Pond House Infiltration: House Infiltration

Inflow Area = 0.048 ac, 100.00% Impervious, Inflow Depth > 4.05" for 10-YR event
Inflow = 0.21 cfs @ 12.09 hrs, Volume= 0.016 af
Outflow = 0.01 cfs @ 10.25 hrs, Volume= 0.009 af, Atten= 96%, Lag= 0.0 min
Discarded = 0.01 cfs @ 10.25 hrs, Volume= 0.009 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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Printed 9/22/2016

Page 75

Peak Elev= 271.03' @ 15.26 hrs Surf.Area= 330 sf Storage= 392 cf

Plug-Flow detention time= 154.7 min calculated for 0.009 af (53% of inflow)
Center-of-Mass det. time= 65.1 min (800.8 - 735.6)

Volume	Invert	Avail.Storage	Storage Description
#1	270.00'	373 cf	ADS_StormTech SC-740 x 8 Inside #2 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 2 rows
#2	269.00'	445 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 1,485 cf Overall - 373 cf Embedded = 1,112 cf x 40.0% Voids
		818 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
269.00	330	0	0
273.50	330	1,485	1,485

Device	Routing	Invert	Outlet Devices
#1	Discarded	269.00'	1.040 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.01 cfs @ 10.25 hrs HW=269.05' (Free Discharge)
↑ **1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Summary for Pond Post Existing Pond: Existing Pond

Inflow Area = 17.672 ac, 15.88% Impervious, Inflow Depth > 1.52" for 10-YR event
Inflow = 23.75 cfs @ 12.22 hrs, Volume= 2.241 af
Outflow = 3.28 cfs @ 13.53 hrs, Volume= 0.975 af, Atten= 86%, Lag= 78.5 min
Primary = 3.28 cfs @ 13.53 hrs, Volume= 0.975 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 263.37' @ 13.53 hrs Surf.Area= 52,303 sf Storage= 57,496 cf

Plug-Flow detention time= 209.0 min calculated for 0.975 af (44% of inflow)

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Printed 9/22/2016

Page 76

Center-of-Mass det. time= 117.4 min (936.7 - 819.3)

Volume	Invert	Avail.Storage	Storage Description
#1	262.00'	64,223 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
262.00	31,406	0	0
263.50	54,224	64,223	64,223

Device	Routing	Invert	Outlet Devices
#1	Primary	263.30'	70.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=3.28 cfs @ 13.53 hrs HW=263.37' TW=0.00' (Dynamic Tailwater)↑**1=Broad-Crested Rectangular Weir**(Weir Controls 3.28 cfs @ 0.64 fps)**Summary for Pond Stormceptor 1: Stormceptor 1**

Inflow Area = 1.771 ac, 21.36% Impervious, Inflow Depth > 0.79" for 10-YR event
 Inflow = 0.97 cfs @ 12.23 hrs, Volume= 0.117 af
 Outflow = 0.97 cfs @ 12.23 hrs, Volume= 0.117 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.97 cfs @ 12.23 hrs, Volume= 0.117 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 265.79' @ 12.23 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	265.20'	12.0" Round 12" Culvert L= 80.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 265.20' / 264.80' S= 0.0050 ' / ' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.96 cfs @ 12.23 hrs HW=265.79' TW=265.24' (Dynamic Tailwater)↑**1=12" Culvert** (Barrel Controls 0.96 cfs @ 2.86 fps)

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Printed 9/22/2016

Page 77

Summary for Pond Stormceptor 2: Stormceptor 2

Inflow Area = 1.268 ac, 28.14% Impervious, Inflow Depth > 0.75" for 10-YR event
Inflow = 0.72 cfs @ 12.11 hrs, Volume= 0.079 af
Outflow = 0.71 cfs @ 12.11 hrs, Volume= 0.079 af, Atten= 0%, Lag= 0.1 min
Primary = 0.71 cfs @ 12.11 hrs, Volume= 0.079 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 266.22' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	265.50'	12.0" Round 12" Culvert L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 265.50' / 265.00' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.65 cfs @ 12.11 hrs HW=266.22' TW=266.12' (Dynamic Tailwater)
↑**1=12" Culvert** (Outlet Controls 0.65 cfs @ 1.51 fps)

Summary for Pond Stormceptor 3: Stormceptor 3

Inflow Area = 1.557 ac, 34.31% Impervious, Inflow Depth > 2.26" for 10-YR event
Inflow = 2.61 cfs @ 12.16 hrs, Volume= 0.293 af
Outflow = 2.61 cfs @ 12.16 hrs, Volume= 0.293 af, Atten= 0%, Lag= 0.0 min
Primary = 2.61 cfs @ 12.16 hrs, Volume= 0.293 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 267.38' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	266.40'	12.0" Round 12" Culvert L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 266.40' / 266.00' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=2.58 cfs @ 12.16 hrs HW=267.37' TW=266.35' (Dynamic Tailwater)
↑**1=12" Culvert** (Barrel Controls 2.58 cfs @ 4.21 fps)

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Printed 9/22/2016

Page 78

Summary for Pond Stormceptor 4: Stormceptor 4

Inflow Area = 2.571 ac, 29.10% Impervious, Inflow Depth > 1.59" for 10-YR event
Inflow = 3.84 cfs @ 12.28 hrs, Volume= 0.341 af
Outflow = 3.84 cfs @ 12.28 hrs, Volume= 0.341 af, Atten= 0%, Lag= 0.0 min
Primary = 3.84 cfs @ 12.28 hrs, Volume= 0.341 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 268.31' @ 12.30 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	266.60'	12.0" Round 12" Culvert L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 266.60' / 266.00' S= 0.0150 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=3.71 cfs @ 12.28 hrs HW=268.28' TW=267.32' (Dynamic Tailwater)
↑**1=12" Culvert** (Inlet Controls 3.71 cfs @ 4.72 fps)

Summary for Pond STORMCEPTOR 5: STORMCEPTOR 5

Inflow Area = 0.500 ac, 86.27% Impervious, Inflow Depth > 3.62" for 10-YR event
Inflow = 1.96 cfs @ 12.10 hrs, Volume= 0.151 af
Outflow = 1.96 cfs @ 12.10 hrs, Volume= 0.151 af, Atten= 0%, Lag= 0.0 min
Primary = 1.96 cfs @ 12.10 hrs, Volume= 0.151 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 266.13' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	265.20'	12.0" Round Culvert L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 265.20' / 265.10' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.95 cfs @ 12.10 hrs HW=266.13' TW=265.50' (Dynamic Tailwater)
↑**1=Culvert** (Barrel Controls 1.95 cfs @ 3.33 fps)

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Page 79

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentHouse: House

Runoff Area=2,100 sf 100.00% Impervious Runoff Depth>4.87"
Flow Length=30' Slope=0.3000 '/' Tc=6.0 min CN=98 Runoff=0.25 cfs 0.020 af

SubcatchmentPost 1a: Post 1a

Runoff Area=690,766 sf 11.01% Impervious Runoff Depth>1.37"
Flow Length=936' Slope=0.0530 '/' Tc=22.1 min UI Adjusted CN=59 Runoff=16.62 cfs 1.814 af

SubcatchmentPost 1b: Post 1b

Runoff Area=49,032 sf 16.57% Impervious Runoff Depth>1.38"
Flow Length=264' Slope=0.0530 '/' Tc=7.8 min UI Adjusted CN=59 Runoff=1.70 cfs 0.130 af

SubcatchmentPost 1c: Post 1c

Runoff Area=28,115 sf 29.72% Impervious Runoff Depth>1.90"
Flow Length=497' Slope=0.0330 '/' Tc=12.6 min UI Adjusted CN=66 Runoff=1.21 cfs 0.102 af

SubcatchmentPost 1d: Post 1d

Runoff Area=46,660 sf 17.82% Impervious Runoff Depth>1.45"
Flow Length=445' Slope=0.0370 '/' Tc=13.5 min UI Adjusted CN=60 Runoff=1.45 cfs 0.129 af

SubcatchmentPost 1e: Post 1e

Runoff Area=8,566 sf 84.33% Impervious Runoff Depth>4.12"
Flow Length=335' Slope=0.0130 '/' Tc=8.2 min CN=90 Runoff=0.88 cfs 0.067 af

SubcatchmentPost 1f: Post 1f

Runoff Area=77,001 sf 20.66% Impervious Runoff Depth>2.48"
Flow Length=535' Slope=0.0600 '/' Tc=8.9 min UI Adjusted CN=73 Runoff=4.91 cfs 0.366 af

SubcatchmentPost 1g: Post 1g

Runoff Area=34,971 sf 47.68% Impervious Runoff Depth>3.50"
Flow Length=605' Slope=0.0230 '/' Tc=12.3 min CN=84 Runoff=2.82 cfs 0.234 af

SubcatchmentPost 2a: Post 2a

Runoff Area=689,243 sf 14.11% Impervious Runoff Depth>2.06"
Flow Length=863' Slope=0.0640 '/' Tc=14.9 min UI Adjusted CN=68 Runoff=30.76 cfs 2.714 af

SubcatchmentPost 2b: Post 2b

Runoff Area=12,743 sf 13.17% Impervious Runoff Depth>1.67"
Flow Length=242' Slope=0.0270 '/' Tc=9.2 min UI Adjusted CN=63 Runoff=0.53 cfs 0.041 af

SubcatchmentPost 2c: Post 2c

Runoff Area=56,127 sf 22.11% Impervious Runoff Depth>2.66"
Flow Length=499' Slope=0.0300 '/' Tc=11.2 min UI Adjusted CN=75 Runoff=3.61 cfs 0.285 af

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Page 80

SubcatchmentPost 2d: Post 2d

Runoff Area=11,684 sf 92.94% Impervious Runoff Depth>4.80"
Flow Length=739' Slope=0.0220 '/' Tc=8.5 min CN=97 Runoff=1.30 cfs 0.107 af

SubcatchmentPost 3a: Post 3a

Runoff Area=221,701 sf 0.39% Impervious Runoff Depth>2.75"
Flow Length=522' Slope=0.0960 '/' Tc=6.9 min CN=76 Runoff=16.86 cfs 1.166 af

SubcatchmentPost 3b: Post 3b

Runoff Area=7,576 sf 100.00% Impervious Runoff Depth>4.87"
Flow Length=570' Slope=0.0280 '/' Tc=6.0 min CN=98 Runoff=0.91 cfs 0.071 af

SubcatchmentPost 3c: Post 3c

Runoff Area=14,201 sf 78.95% Impervious Runoff Depth>4.22"
Flow Length=571' Slope=0.0280 '/' Tc=8.2 min CN=91 Runoff=1.49 cfs 0.115 af

SubcatchmentPost 4a: Post 4a

Runoff Area=5,922 sf 23.96% Impervious Runoff Depth>1.68"
Flow Length=105' Slope=0.0250 '/' Tc=6.0 min UI Adjusted CN=63 Runoff=0.27 cfs 0.019 af

SubcatchmentPost 4b: Post 4b

Runoff Area=5,403 sf 20.97% Impervious Runoff Depth>1.68"
Flow Length=112' Slope=0.0490 '/' Tc=6.0 min UI Adjusted CN=63 Runoff=0.25 cfs 0.017 af

Reach FILTER STRIP 1A-1: FILTER STRIP 1A-1

Avg. Flow Depth=0.35' Max Vel=0.34 fps Inflow=1.54 cfs 0.187 af
n=0.400 L=194.0' S=0.0567 '/' Capacity=2.83 cfs Outflow=1.34 cfs 0.185 af

Reach FILTER STRIP 1A-2: FILTER STRIP 1A-2

Avg. Flow Depth=0.21' Max Vel=0.27 fps Inflow=1.45 cfs 0.130 af
n=0.400 L=202.0' S=0.0743 '/' Capacity=7.62 cfs Outflow=1.15 cfs 0.129 af

Reach FILTER STRIP 1A-3: FILTER STRIP 1A-3

Avg. Flow Depth=0.44' Max Vel=0.46 fps Inflow=5.38 cfs 0.481 af
n=0.400 L=177.0' S=0.0791 '/' Capacity=6.70 cfs Outflow=5.00 cfs 0.479 af

Reach FILTER STRIP 2A: FILTER STRIP 2A

Avg. Flow Depth=0.43' Max Vel=0.19 fps Inflow=2.99 cfs 0.385 af
n=0.400 L=106.0' S=0.0142 '/' Capacity=3.97 cfs Outflow=2.81 cfs 0.381 af

Reach Filter Strip 2B: Filter Strip 2B

Avg. Flow Depth=0.17' Max Vel=0.26 fps Inflow=0.53 cfs 0.041 af
n=0.240 L=225.0' S=0.0311 '/' Capacity=3.50 cfs Outflow=0.35 cfs 0.040 af

Reach Post: Post

Inflow=33.38 cfs 5.858 af
Outflow=33.38 cfs 5.858 af

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Page 81

Reach Post East: Post East

Inflow=18.66 cfs 3.214 af

Outflow=18.66 cfs 3.214 af

Reach Post West: Post West Pond

Inflow=24.11 cfs 2.644 af

Outflow=24.11 cfs 2.644 af

Reach Stream: IntermittentStream

Avg. Flow Depth=0.47' Max Vel=1.17 fps Inflow=2.38 cfs 0.185 af
n=0.040 L=438.0' S=0.0048 '/ Capacity=5.56 cfs Outflow=2.02 cfs 0.184 af

Pond BASIN 1: BASIN 1

Peak Elev=268.09' Storage=1,596 cf Inflow=1.70 cfs 0.130 af
Discarded=0.08 cfs 0.032 af Primary=0.67 cfs 0.085 af Outflow=0.75 cfs 0.117 af

Pond BASIN 2: BASIN 2

Peak Elev=269.19' Storage=1,184 cf Inflow=1.45 cfs 0.129 af
Discarded=0.08 cfs 0.048 af Primary=1.06 cfs 0.063 af Outflow=1.14 cfs 0.110 af

Pond BASIN 3: BASIN 3

Peak Elev=269.08' Storage=1,524 cf Inflow=3.61 cfs 0.285 af
Discarded=0.03 cfs 0.007 af Primary=2.33 cfs 0.277 af Outflow=2.36 cfs 0.285 af

Pond BASIN 4: BASIN 4

Peak Elev=270.08' Storage=5,487 cf Inflow=7.64 cfs 0.600 af
Discarded=0.18 cfs 0.099 af Primary=1.23 cfs 0.324 af Secondary=4.51 cfs 0.157 af Outflow=5.56 cfs 0.580 af

Pond CB P1: CB P1

Peak Elev=272.86' Inflow=0.53 cfs 0.041 af
12.0" Round Culvert n=0.012 L=150.0' S=0.0100 '/ Outflow=0.53 cfs 0.041 af

Pond CB P2: CB P2

Peak Elev=266.22' Inflow=1.21 cfs 0.102 af
12.0" Round Culvert n=0.013 L=10.0' S=0.0100 '/ Outflow=1.21 cfs 0.102 af

Pond CB P3: CB P3

Peak Elev=267.25' Inflow=0.88 cfs 0.067 af
12.0" Round Culvert n=0.012 L=10.0' S=0.0100 '/ Outflow=0.88 cfs 0.067 af

Pond CB P4: CB P4

Peak Elev=270.47' Inflow=2.82 cfs 0.234 af
12.0" Round Culvert n=0.012 L=30.0' S=0.0100 '/ Outflow=2.82 cfs 0.234 af

Pond CB P5: CB P5

Peak Elev=266.32' Inflow=0.91 cfs 0.071 af
12.0" Round Culvert n=0.012 L=5.0' S=0.0100 '/ Outflow=0.91 cfs 0.071 af

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Page 82

Pond CB P6: CB P6

Peak Elev=266.42' Inflow=1.49 cfs 0.115 af
12.0" Round Culvert n=0.012 L=5.0' S=0.0100 '/' Outflow=1.49 cfs 0.115 af

Pond House Infiltration: House Infiltration

Peak Elev=271.53' Storage=508 cf Inflow=0.25 cfs 0.020 af
Outflow=0.01 cfs 0.009 af

Pond Post Existing Pond: Existing Pond

Peak Elev=263.48' Storage=63,113 cf Inflow=33.68 cfs 3.135 af
Outflow=12.45 cfs 1.864 af

Pond Stormceptor1: Stormceptor1

Peak Elev=265.98' Inflow=1.54 cfs 0.187 af
12.0" Round Culvert n=0.013 L=80.0' S=0.0050 '/' Outflow=1.54 cfs 0.187 af

Pond Stormceptor2: Stormceptor2

Peak Elev=266.42' Inflow=1.45 cfs 0.130 af
12.0" Round Culvert n=0.012 L=50.0' S=0.0100 '/' Outflow=1.45 cfs 0.130 af

Pond Stormceptor3: Stormceptor3

Peak Elev=267.52' Inflow=2.99 cfs 0.385 af
12.0" Round Culvert n=0.012 L=40.0' S=0.0100 '/' Outflow=2.99 cfs 0.385 af

Pond Stormceptor4: Stormceptor4

Peak Elev=269.35' Inflow=5.38 cfs 0.481 af
12.0" Round Culvert n=0.012 L=40.0' S=0.0150 '/' Outflow=5.38 cfs 0.481 af

Pond STORMCEPTOR5: STORMCEPTOR5

Peak Elev=266.27' Inflow=2.38 cfs 0.185 af
12.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=2.38 cfs 0.185 af

Total Runoff Area = 45.037 ac Runoff Volume = 7.398 af Average Runoff Depth = 1.97"
85.36% Pervious = 38.444 ac 14.64% Impervious = 6.593 ac

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Page 83

Summary for Subcatchment House: House

Runoff = 0.25 cfs @ 12.09 hrs, Volume= 0.020 af, Depth> 4.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.50"

Area (sf)	CN	Description
2,100	98	Unconnected pavement, HSG A
* 0	98	Unconnected pavement, HSG B
0	98	Unconnected pavement, HSG C
0	98	Unconnected pavement, HSG D
0	32	Woods/grass comb., Good, HSG A
0	39	>75% Grass cover, Good, HSG A
0	58	Woods/grass comb., Good, HSG B
0	61	>75% Grass cover, Good, HSG B
0	72	Woods/grass comb., Good, HSG C
0	74	>75% Grass cover, Good, HSG C
0	79	Woods/grass comb., Good, HSG D
0	80	>75% Grass cover, Good, HSG D
2,100	98	Weighted Average
2,100	98	100.00% Impervious Area
2,100		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	30	0.3000	3.01		Lag/CN Method, Houses
0.2	30	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Post 1a: Post 1a

Runoff = 16.62 cfs @ 12.35 hrs, Volume= 1.814 af, Depth> 1.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.50"

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Page 84

Area (sf)	CN	Adj	Description
3,464	98		Unconnected pavement, HSG A
66,368	98		Unconnected pavement, HSG B
6,212	98		Unconnected pavement, HSG C
0	98		Unconnected pavement, HSG D
46,666	32		Woods/grass comb., Good, HSG A
73,867	39		>75% Grass cover, Good, HSG A
158,275	58		Woods/grass comb., Good, HSG B
258,651	61		>75% Grass cover, Good, HSG B
61,008	72		Woods/grass comb., Good, HSG C
16,255	74		>75% Grass cover, Good, HSG C
0	79		Woods/grass comb., Good, HSG D
0	80		>75% Grass cover, Good, HSG D
690,766	61	59	Weighted Average, UI Adjusted
614,722	57	57	88.99% Pervious Area
76,044	98	98	11.01% Impervious Area
76,044			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.1	936	0.0530	0.71		Lag/CN Method, Post 1a

Summary for Subcatchment Post 1b: Post 1b

Runoff = 1.70 cfs @ 12.12 hrs, Volume= 0.130 af, Depth> 1.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 85

Area (sf)	CN	Adj	Description
3,067	98		Unconnected pavement, HSG A
5,058	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
0	98		Unconnected pavement, HSG D
0	32		Woods/grass comb., Good, HSG A
11,103	39		>75% Grass cover, Good, HSG A
0	58		Woods/grass comb., Good, HSG B
29,804	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
0	79		Woods/grass comb., Good, HSG D
0	80		>75% Grass cover, Good, HSG D
49,032	62	59	Weighted Average, UI Adjusted
40,907	55	55	83.43% Pervious Area
8,125	98	98	16.57% Impervious Area
8,125			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.8	264	0.0530	0.56		Lag/CN Method, Post 1d

Summary for Subcatchment Post 1c: Post 1c

Runoff = 1.21 cfs @ 12.19 hrs, Volume= 0.102 af, Depth> 1.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.50"

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Page 86

Area (sf)	CN	Adj	Description
1,896	98		Unconnected pavement, HSG A
6,460	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
0	98		Unconnected pavement, HSG D
0	32		Woods/grass comb., Good, HSG A
21	39		>75% Grass cover, Good, HSG A
0	58		Woods/grass comb., Good, HSG B
19,738	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
0	79		Woods/grass comb., Good, HSG D
0	80		>75% Grass cover, Good, HSG D
28,115	72	66	Weighted Average, UI Adjusted
19,759	61	61	70.28% Pervious Area
8,356	98	98	29.72% Impervious Area
8,356			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	497	0.0330	0.66		Lag/CN Method, Post 1c

Summary for Subcatchment Post 1d: Post 1d

Runoff = 1.45 cfs @ 12.21 hrs, Volume= 0.129 af, Depth> 1.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.50"

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Page 87

Area (sf)	CN	Adj	Description
2,113	98		Unconnected pavement, HSG A
6,061	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
141	98		Unconnected pavement, HSG D
0	32		Woods/grass comb., Good, HSG A
9,211	39		>75% Grass cover, Good, HSG A
0	58		Woods/grass comb., Good, HSG B
28,313	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
0	79		Woods/grass comb., Good, HSG D
821	80		>75% Grass cover, Good, HSG D
46,660	64	60	Weighted Average, UI Adjusted
38,345	56	56	82.18% Pervious Area
8,315	98	98	17.82% Impervious Area
8,315			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.5	445	0.0370	0.55		Lag/CN Method, Post 1d

Summary for Subcatchment Post 1e: Post 1e

Runoff = 0.88 cfs @ 12.11 hrs, Volume= 0.067 af, Depth> 4.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 88

Area (sf)	CN	Description
2,800	98	Unconnected pavement, HSG A
4,424	98	Unconnected pavement, HSG B
0	98	Unconnected pavement, HSG C
0	98	Unconnected pavement, HSG D
0	32	Woods/grass comb., Good, HSG A
809	39	>75% Grass cover, Good, HSG A
0	58	Woods/grass comb., Good, HSG B
533	61	>75% Grass cover, Good, HSG B
0	72	Woods/grass comb., Good, HSG C
0	74	>75% Grass cover, Good, HSG C
0	79	Woods/grass comb., Good, HSG D
0	80	>75% Grass cover, Good, HSG D
8,566	90	Weighted Average
1,342	48	15.67% Pervious Area
7,224	98	84.33% Impervious Area
7,224		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	335	0.0130	0.68		Lag/CN Method, Post 1e

Summary for Subcatchment Post 1f: Post 1f

Runoff = 4.91 cfs @ 12.13 hrs, Volume= 0.366 af, Depth> 2.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 89

Area (sf)	CN	Adj	Description
0	98		Unconnected pavement, HSG A
9,773	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
6,135	98		Unconnected pavement, HSG D
0	32		Woods/grass comb., Good, HSG A
0	39		>75% Grass cover, Good, HSG A
2,765	58		Woods/grass comb., Good, HSG B
29,605	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
8,761	79		Woods/grass comb., Good, HSG D
19,962	80		>75% Grass cover, Good, HSG D
77,001	76	73	Weighted Average, UI Adjusted
61,093	70	70	79.34% Pervious Area
15,908	98	98	20.66% Impervious Area
15,908			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	535	0.0600	1.00		Lag/CN Method, Post 1f

Summary for Subcatchment Post 1g: Post 1g

Runoff = 2.82 cfs @ 12.17 hrs, Volume= 0.234 af, Depth> 3.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.50"

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Printed 9/22/2016

Page 90

Area (sf)	CN	Description
0	98	Unconnected pavement, HSG A
10,065	98	Unconnected pavement, HSG B
0	98	Unconnected pavement, HSG C
6,608	98	Unconnected pavement, HSG D
0	32	Woods/grass comb., Good, HSG A
0	39	>75% Grass cover, Good, HSG A
0	58	Woods/grass comb., Good, HSG B
8,268	61	>75% Grass cover, Good, HSG B
0	72	Woods/grass comb., Good, HSG C
0	74	>75% Grass cover, Good, HSG C
264	79	Woods/grass comb., Good, HSG D
9,766	80	>75% Grass cover, Good, HSG D
34,971	84	Weighted Average
18,298	71	52.32% Pervious Area
16,673	98	47.68% Impervious Area
16,673		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	605	0.0230	0.82		Lag/CN Method, Post 1g

Summary for Subcatchment Post 2a: Post 2a

Runoff = 30.76 cfs @ 12.22 hrs, Volume= 2.714 af, Depth> 2.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 91

Area (sf)	CN	Adj	Description
0	98		Unconnected pavement, HSG A
61,228	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
36,052	98		Unconnected pavement, HSG D
0	32		Woods/grass comb., Good, HSG A
0	39		>75% Grass cover, Good, HSG A
197,068	58		Woods/grass comb., Good, HSG B
213,835	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
78,890	79		Woods/grass comb., Good, HSG D
102,170	80		>75% Grass cover, Good, HSG D
689,243	70	68	Weighted Average, UI Adjusted
591,963	66	66	85.89% Pervious Area
97,280	98	98	14.11% Impervious Area
97,280			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.9	863	0.0640	0.97		Lag/CN Method, Post 2a

Summary for Subcatchment Post 2b: Post 2b

Runoff = 0.53 cfs @ 12.14 hrs, Volume= 0.041 af, Depth> 1.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 92

Area (sf)	CN	Adj	Description
0	98		Unconnected pavement, HSG A
1,678	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
0	98		Unconnected pavement, HSG D
0	32		Woods/grass comb., Good, HSG A
0	39		>75% Grass cover, Good, HSG A
0	58		Woods/grass comb., Good, HSG B
11,065	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
0	79		Woods/grass comb., Good, HSG D
0	80		>75% Grass cover, Good, HSG D
12,743	66	63	Weighted Average, UI Adjusted
11,065	61	61	86.83% Pervious Area
1,678	98	98	13.17% Impervious Area
1,678			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	242	0.0270	0.44		Lag/CN Method, Post 2b

Summary for Subcatchment Post 2c: Post 2c

Runoff = 3.61 cfs @ 12.16 hrs, Volume= 0.285 af, Depth> 2.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 93

Area (sf)	CN	Adj	Description
0	98		Unconnected pavement, HSG A
2,740	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
9,668	98		Unconnected pavement, HSG D
0	32		Woods/grass comb., Good, HSG A
0	39		>75% Grass cover, Good, HSG A
0	58		Woods/grass comb., Good, HSG B
18,069	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
0	79		Woods/grass comb., Good, HSG D
25,650	80		>75% Grass cover, Good, HSG D
56,127	78	75	Weighted Average, UI Adjusted
43,719	72	72	77.89% Pervious Area
12,408	98	98	22.11% Impervious Area
12,408			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	499	0.0300	0.74		Lag/CN Method, Post 2c

Summary for Subcatchment Post 2d: Post 2d

Runoff = 1.30 cfs @ 12.12 hrs, Volume= 0.107 af, Depth> 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 94

Area (sf)	CN	Description
0	98	Unconnected pavement, HSG A
4,136	98	Unconnected pavement, HSG B
0	98	Unconnected pavement, HSG C
6,723	98	Unconnected pavement, HSG D
0	32	Woods/grass comb., Good, HSG A
0	39	>75% Grass cover, Good, HSG A
0	58	Woods/grass comb., Good, HSG B
0	61	>75% Grass cover, Good, HSG B
0	72	Woods/grass comb., Good, HSG C
0	74	>75% Grass cover, Good, HSG C
0	79	Woods/grass comb., Good, HSG D
825	80	>75% Grass cover, Good, HSG D
11,684	97	Weighted Average
825	80	7.06% Pervious Area
10,859	98	92.94% Impervious Area
10,859		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	739	0.0220	1.46		Lag/CN Method, Post 2d

Summary for Subcatchment Post 3a: Post 3a

Runoff = 16.86 cfs @ 12.10 hrs, Volume= 1.166 af, Depth> 2.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 95

Area (sf)	CN	Description			
0	98	Unconnected pavement, HSG A			
0	98	Unconnected pavement, HSG B			
0	98	Unconnected pavement, HSG C			
866	98	Unconnected pavement, HSG D			
0	32	Woods/grass comb., Good, HSG A			
0	39	>75% Grass cover, Good, HSG A			
27,594	58	Woods/grass comb., Good, HSG B			
4,601	61	>75% Grass cover, Good, HSG B			
0	72	Woods/grass comb., Good, HSG C			
0	74	>75% Grass cover, Good, HSG C			
167,810	79	Woods/grass comb., Good, HSG D			
20,830	80	>75% Grass cover, Good, HSG D			
221,701	76	Weighted Average			
220,835	76	99.61% Pervious Area			
866	98	0.39% Impervious Area			
866		100.00% Unconnected			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	522	0.0960	1.26		Lag/CN Method, Post 3a

Summary for Subcatchment Post 3b: Post 3b

Runoff = 0.91 cfs @ 12.09 hrs, Volume= 0.071 af, Depth> 4.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 96

Area (sf)	CN	Description
0	98	Unconnected pavement, HSG A
7,576	98	Unconnected pavement, HSG B
0	98	Unconnected pavement, HSG C
0	98	Unconnected pavement, HSG D
0	32	Woods/grass comb., Good, HSG A
0	39	>75% Grass cover, Good, HSG A
0	58	Woods/grass comb., Good, HSG B
0	61	>75% Grass cover, Good, HSG B
0	72	Woods/grass comb., Good, HSG C
0	74	>75% Grass cover, Good, HSG C
0	79	Woods/grass comb., Good, HSG D
0	80	>75% Grass cover, Good, HSG D
7,576	98	Weighted Average
7,576	98	100.00% Impervious Area
7,576		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	570	0.0280	1.66		Lag/CN Method, Post 3b
5.7	570	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Post 3c: Post 3c

Runoff = 1.49 cfs @ 12.11 hrs, Volume= 0.115 af, Depth> 4.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 97

Area (sf)	CN	Description
0	98	Unconnected pavement, HSG A
10,644	98	Unconnected pavement, HSG B
0	98	Unconnected pavement, HSG C
568	98	Unconnected pavement, HSG D
0	32	Woods/grass comb., Good, HSG A
0	39	>75% Grass cover, Good, HSG A
0	58	Woods/grass comb., Good, HSG B
2,771	61	>75% Grass cover, Good, HSG B
0	72	Woods/grass comb., Good, HSG C
0	74	>75% Grass cover, Good, HSG C
0	79	Woods/grass comb., Good, HSG D
218	80	>75% Grass cover, Good, HSG D
14,201	91	Weighted Average
2,989	62	21.05% Pervious Area
11,212	98	78.95% Impervious Area
11,212		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	571	0.0280	1.17		Lag/CN Method, Post 3c

Summary for Subcatchment Post 4a: Post 4a

Runoff = 0.27 cfs @ 12.10 hrs, Volume= 0.019 af, Depth> 1.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 98

Area (sf)	CN	Adj	Description
0	98		Unconnected pavement, HSG A
1,419	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
0	98		Unconnected pavement, HSG D
0	32		Woods/grass comb., Good, HSG A
0	39		>75% Grass cover, Good, HSG A
3,696	58		Woods/grass comb., Good, HSG B
807	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
0	79		Woods/grass comb., Good, HSG D
0	80		>75% Grass cover, Good, HSG D
5,922	68	63	Weighted Average, UI Adjusted
4,503	59	59	76.04% Pervious Area
1,419	98	98	23.96% Impervious Area
1,419			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	105	0.0250	0.38		Lag/CN Method, Post 4a
4.7	105	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Post 4b: Post 4b

Runoff = 0.25 cfs @ 12.10 hrs, Volume= 0.017 af, Depth> 1.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 99

Area (sf)	CN	Adj	Description
0	98		Unconnected pavement, HSG A
1,133	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
0	98		Unconnected pavement, HSG D
0	32		Woods/grass comb., Good, HSG A
0	39		>75% Grass cover, Good, HSG A
3,625	58		Woods/grass comb., Good, HSG B
645	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
0	79		Woods/grass comb., Good, HSG D
0	80		>75% Grass cover, Good, HSG D
5,403	67	63	Weighted Average, UI Adjusted
4,270	58	58	79.03% Pervious Area
1,133	98	98	20.97% Impervious Area
1,133			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	112	0.0490	0.52		Lag/CN Method, Post 4b
3.6	112	Total, Increased to minimum Tc = 6.0 min			

Summary for Reach FILTER STRIP 1A-1: FILTER STRIP 1A-1

Inflow Area = 1.771 ac, 21.36% Impervious, Inflow Depth > 1.27" for 25-YR event
 Inflow = 1.54 cfs @ 12.20 hrs, Volume= 0.187 af
 Outflow = 1.34 cfs @ 12.45 hrs, Volume= 0.185 af, Atten= 13%, Lag= 14.6 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 0.34 fps, Min. Travel Time= 9.6 min
 Avg. Velocity = 0.17 fps, Avg. Travel Time= 19.5 min

Peak Storage= 771 cf @ 12.45 hrs
 Average Depth at Peak Storage= 0.35'
 Bank-Full Depth= 0.50' Flow Area= 6.7 sf, Capacity= 2.83 cfs

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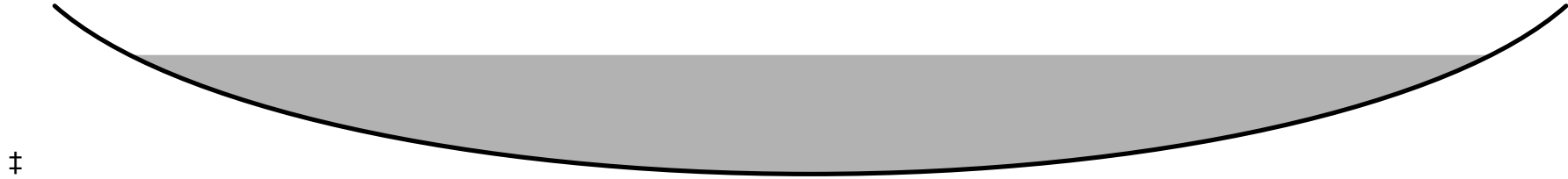
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Page 100

20.00' x 0.50' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush

Length= 194.0' Slope= 0.0567 '/'

Inlet Invert= 265.00', Outlet Invert= 254.00'



Summary for Reach FILTER STRIP 1A-2: FILTER STRIP 1A-2

Inflow Area = 1.268 ac, 28.14% Impervious, Inflow Depth > 1.23" for 25-YR event

Inflow = 1.45 cfs @ 12.34 hrs, Volume= 0.130 af

Outflow = 1.15 cfs @ 12.47 hrs, Volume= 0.129 af, Atten= 21%, Lag= 8.1 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.27 fps, Min. Travel Time= 12.4 min

Avg. Velocity = 0.10 fps, Avg. Travel Time= 33.3 min

Peak Storage= 854 cf @ 12.47 hrs

Average Depth at Peak Storage= 0.21'

Bank-Full Depth= 0.50' Flow Area= 15.7 sf, Capacity= 7.62 cfs

47.00' x 0.50' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush

Length= 202.0' Slope= 0.0743 '/'

Inlet Invert= 266.00', Outlet Invert= 251.00'



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Page 101

Summary for Reach FILTER STRIP 1A-3: FILTER STRIP 1A-3

Inflow Area = 2.571 ac, 29.10% Impervious, Inflow Depth > 2.25" for 25-YR event
Inflow = 5.38 cfs @ 12.20 hrs, Volume= 0.481 af
Outflow = 5.00 cfs @ 12.37 hrs, Volume= 0.479 af, Atten= 7%, Lag= 10.3 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.46 fps, Min. Travel Time= 6.4 min
Avg. Velocity = 0.21 fps, Avg. Travel Time= 14.3 min

Peak Storage= 1,927 cf @ 12.37 hrs
Average Depth at Peak Storage= 0.44'
Bank-Full Depth= 0.50' Flow Area= 13.3 sf, Capacity= 6.70 cfs

40.00' x 0.50' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush
Length= 177.0' Slope= 0.0791 '/'
Inlet Invert= 267.00', Outlet Invert= 253.00'



Summary for Reach FILTER STRIP 2A: FILTER STRIP 2A

Inflow Area = 1.557 ac, 34.31% Impervious, Inflow Depth > 2.96" for 25-YR event
Inflow = 2.99 cfs @ 12.15 hrs, Volume= 0.385 af
Outflow = 2.81 cfs @ 12.36 hrs, Volume= 0.381 af, Atten= 6%, Lag= 12.7 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.19 fps, Min. Travel Time= 9.2 min
Avg. Velocity = 0.08 fps, Avg. Travel Time= 22.4 min

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Page 102

Peak Storage= 1,559 cf @ 12.36 hrs
Average Depth at Peak Storage= 0.43'
Bank-Full Depth= 0.50' Flow Area= 18.7 sf, Capacity= 3.97 cfs

56.00' x 0.50' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush
Length= 106.0' Slope= 0.0142 '/'
Inlet Invert= 266.00', Outlet Invert= 264.50'



Summary for Reach Filter Strip 2B: Filter Strip 2B

Inflow Area = 0.293 ac, 13.17% Impervious, Inflow Depth > 1.67" for 25-YR event
Inflow = 0.53 cfs @ 12.14 hrs, Volume= 0.041 af
Outflow = 0.35 cfs @ 12.30 hrs, Volume= 0.040 af, Atten= 34%, Lag= 9.1 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.26 fps, Min. Travel Time= 14.5 min
Avg. Velocity = 0.12 fps, Avg. Travel Time= 30.0 min

Peak Storage= 304 cf @ 12.30 hrs
Average Depth at Peak Storage= 0.17'
Bank-Full Depth= 0.50' Flow Area= 6.7 sf, Capacity= 3.50 cfs

20.00' x 0.50' deep Parabolic Channel, n= 0.240 Sheet flow over Dense Grass
Length= 225.0' Slope= 0.0311 '/'
Inlet Invert= 271.00', Outlet Invert= 264.00'

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Page 103



Summary for Reach Post: Post

Inflow Area = 44.989 ac, 14.55% Impervious, Inflow Depth > 1.56" for 25-YR event
Inflow = 33.38 cfs @ 12.54 hrs, Volume= 5.858 af
Outflow = 33.38 cfs @ 12.54 hrs, Volume= 5.858 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach Post East: Post East

Inflow Area = 23.262 ac, 14.00% Impervious, Inflow Depth > 1.66" for 25-YR event
Inflow = 18.66 cfs @ 12.11 hrs, Volume= 3.214 af
Outflow = 18.66 cfs @ 12.11 hrs, Volume= 3.214 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach Post West: Post West Pond

Inflow Area = 21.727 ac, 15.13% Impervious, Inflow Depth > 1.46" for 25-YR event
Inflow = 24.11 cfs @ 12.36 hrs, Volume= 2.644 af
Outflow = 24.11 cfs @ 12.36 hrs, Volume= 2.644 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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Page 104

Summary for Reach Stream: Intermittent Stream

Inflow Area = 0.500 ac, 86.27% Impervious, Inflow Depth > 4.45" for 25-YR event
Inflow = 2.38 cfs @ 12.10 hrs, Volume= 0.185 af
Outflow = 2.02 cfs @ 12.16 hrs, Volume= 0.184 af, Atten= 15%, Lag= 3.7 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.17 fps, Min. Travel Time= 6.3 min
Avg. Velocity = 0.45 fps, Avg. Travel Time= 16.2 min

Peak Storage= 756 cf @ 12.16 hrs
Average Depth at Peak Storage= 0.47'
Bank-Full Depth= 0.75' Flow Area= 3.5 sf, Capacity= 5.56 cfs

7.00' x 0.75' deep Parabolic Channel, n= 0.040 Winding stream, pools & shoals
Length= 438.0' Slope= 0.0048 '/'
Inlet Invert= 265.10', Outlet Invert= 263.00'



Summary for Pond BASIN 1: BASIN 1

Inflow Area = 1.126 ac, 16.57% Impervious, Inflow Depth > 1.38" for 25-YR event
Inflow = 1.70 cfs @ 12.12 hrs, Volume= 0.130 af
Outflow = 0.75 cfs @ 12.44 hrs, Volume= 0.117 af, Atten= 56%, Lag= 19.2 min
Discarded = 0.08 cfs @ 12.44 hrs, Volume= 0.032 af
Primary = 0.67 cfs @ 12.44 hrs, Volume= 0.085 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 268.09' @ 12.44 hrs Surf.Area= 1,457 sf Storage= 1,596 cf

Plug-Flow detention time=61.7 min calculated for 0.117 af (90% of inflow)

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Page 105

Center-of-Mass det. time= 31.1 min (857.7 - 826.6)

Volume	Invert	Avail.Storage	Storage Description
#1	266.00'	2,116 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
266.00	358	0	0
267.00	624	491	491
268.00	1,341	983	1,474
268.40	1,873	643	2,116

Device	Routing	Invert	Outlet Devices
#1	Discarded	266.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	268.00'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	267.00'	4.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=0.08 cfs @ 12.44 hrs HW=268.09' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.08 cfs)

Primary OutFlow Max=0.67 cfs @ 12.44 hrs HW=268.09' TW=265.92' (Dynamic Tailwater)

↑**2=Orifice/Grate** (Weir Controls 0.26 cfs @ 0.96 fps)

↑**3=Orifice/Grate** (Orifice Controls 0.40 cfs @ 4.62 fps)

Summary for Pond BASIN 2: BASIN 2

Inflow Area =	1.071 ac, 17.82% Impervious, Inflow Depth > 1.45" for 25-YR event
Inflow =	1.45 cfs @ 12.21 hrs, Volume= 0.129 af
Outflow =	1.14 cfs @ 12.36 hrs, Volume= 0.110 af, Atten= 21%, Lag= 8.9 min
Discarded =	0.08 cfs @ 12.36 hrs, Volume= 0.048 af
Primary =	1.06 cfs @ 12.36 hrs, Volume= 0.063 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 269.19' @ 12.36 hrs Surf.Area= 1,430 sf Storage= 1,184 cf

Plug-Flow detention time= 73.1 min calculated for 0.110 af (85% of inflow)

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Page 106

Center-of-Mass det. time= 30.5 min (859.2 - 828.8)

Volume	Invert	Avail.Storage	Storage Description
#1	268.00'	2,728 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
268.00	660	0	0
269.00	1,207	934	934
270.00	2,382	1,795	2,728

Device	Routing	Invert	Outlet Devices
#1	Discarded	268.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	269.00'	15.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.08 cfs @ 12.36 hrs HW=269.19' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.08 cfs)

Primary OutFlow Max=1.05 cfs @ 12.36 hrs HW=269.19' TW=266.42' (Dynamic Tailwater)

↑**2=Orifice/Grate** (Weir Controls 1.05 cfs @ 1.42 fps)

Summary for Pond BASIN 3: BASIN 3

Inflow Area = 1.288 ac, 22.11% Impervious, Inflow Depth > 2.66" for 25-YR event
 Inflow = 3.61 cfs @ 12.16 hrs, Volume= 0.285 af
 Outflow = 2.36 cfs @ 12.32 hrs, Volume= 0.285 af, Atten= 35%, Lag= 9.5 min
 Discarded = 0.03 cfs @ 12.32 hrs, Volume= 0.007 af
 Primary = 2.33 cfs @ 12.32 hrs, Volume= 0.277 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 269.08' @ 12.32 hrs Surf.Area= 1,371 sf Storage= 1,524 cf

Plug-Flow detention time=6.4 min calculated for 0.284 af (99% of inflow)
 Center-of-Mass det. time= 5.5 min (803.6 - 798.0)

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Page 107

Volume	Invert	Avail.Storage	Storage Description
#1	267.00'	2,181 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
267.00	157	0	0
268.00	690	424	424
269.00	1,309	1,000	1,423
269.50	1,722	758	2,181

Device	Routing	Invert	Outlet Devices
#1	Discarded	267.00'	1.000 in/hr Exfiltration over Surface area
#2	Primary	269.00'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	267.00'	8.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=0.03 cfs @ 12.32 hrs HW=269.07' (Free Discharge)└─**1=Exfiltration** (Exfiltration Controls 0.03 cfs)**Primary OutFlow** Max=2.29 cfs @ 12.32 hrs HW=269.07' TW=267.49' (Dynamic Tailwater)└─**2=Orifice/Grate** (Weir Controls 0.18 cfs @ 0.85 fps)└─**3=Orifice/Grate** (Orifice Controls 2.11 cfs @ 6.04 fps)**Summary for Pond BASIN 4: BASIN 4**

Inflow Area = 2.571 ac, 29.10% Impervious, Inflow Depth > 2.80" for 25-YR event
 Inflow = 7.64 cfs @ 12.14 hrs, Volume= 0.600 af
 Outflow = 5.56 cfs @ 12.20 hrs, Volume= 0.580 af, Atten= 27%, Lag= 3.4 min
 Discarded = 0.18 cfs @ 12.27 hrs, Volume= 0.099 af
 Primary = 1.23 cfs @ 12.14 hrs, Volume= 0.324 af
 Secondary = 4.51 cfs @ 12.27 hrs, Volume= 0.157 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 270.08' @ 12.27 hrs Surf.Area= 3,301 sf Storage= 5,487 cf

Plug-Flow detention time= 38.2 min calculated for 0.580 af (97% of inflow)

Center-of-Mass det. time= 25.5 min (817.6 - 792.1)

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Page 108

Volume	Invert	Avail.Storage	Storage Description
#1	267.50'	9,305 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
267.50	913	0	0
268.00	1,570	621	621
269.00	2,243	1,907	2,527
270.00	3,149	2,696	5,223
271.00	5,014	4,082	9,305

Device	Routing	Invert	Outlet Devices
#1	Discarded	267.50'	2.410 in/hr Exfiltration over Surface area
#2	Secondary	269.50'	15.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	268.00'	6.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=0.18 cfs @ 12.27 hrs HW=270.08' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.18 cfs)**Primary OutFlow** Max=1.07 cfs @ 12.14 hrs HW=269.89' TW=268.60' (Dynamic Tailwater)↑**3=Orifice/Grate** (Orifice Controls 1.07 cfs @ 5.45 fps)**Secondary OutFlow** Max=4.49 cfs @ 12.27 hrs HW=270.08' TW=269.35' (Dynamic Tailwater)↑**2=Orifice/Grate** (Orifice Controls 4.49 cfs @ 3.66 fps)**Summary for Pond CB P1: CB P1**

Inflow Area = 0.293 ac, 13.17% Impervious, Inflow Depth > 1.67" for 25-YR event
 Inflow = 0.53 cfs @ 12.14 hrs, Volume= 0.041 af
 Outflow = 0.53 cfs @ 12.14 hrs, Volume= 0.041 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.53 cfs @ 12.14 hrs, Volume= 0.041 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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Page 109

Peak Elev= 272.86' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	272.50'	12.0" Round 12" Culvert L= 150.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.50' / 271.00' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.52 cfs @ 12.14 hrs HW=272.86' TW=271.15' (Dynamic Tailwater)
↑**1=12" Culvert** (Inlet Controls 0.52 cfs @ 2.05 fps)

Summary for Pond CB P2: CB P2

Inflow Area = 0.645 ac, 29.72% Impervious, Inflow Depth > 1.90" for 25-YR event
Inflow = 1.21 cfs @ 12.19 hrs, Volume= 0.102 af
Outflow = 1.21 cfs @ 12.19 hrs, Volume= 0.102 af, Atten= 0%, Lag= 0.0 min
Primary = 1.21 cfs @ 12.19 hrs, Volume= 0.102 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 266.22' @ 12.20 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	265.55'	12.0" Round Culvert L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 265.55' / 265.45' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.14 cfs @ 12.19 hrs HW=266.22' TW=265.98' (Dynamic Tailwater)
↑**1=Culvert** (Outlet Controls 1.14 cfs @ 2.92 fps)

Summary for Pond CB P3: CB P3

Inflow Area = 0.197 ac, 84.33% Impervious, Inflow Depth > 4.12" for 25-YR event
Inflow = 0.88 cfs @ 12.11 hrs, Volume= 0.067 af
Outflow = 0.88 cfs @ 12.11 hrs, Volume= 0.067 af, Atten= 0%, Lag= 0.0 min
Primary = 0.88 cfs @ 12.11 hrs, Volume= 0.067 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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Page 110

Peak Elev= 267.25' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	266.70'	12.0" Round 12" Culvert L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 266.70' / 266.60' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.86 cfs @ 12.11 hrs HW=267.24' TW=266.26' (Dynamic Tailwater)
↑**1=12" Culvert** (Barrel Controls 0.86 cfs @ 2.88 fps)

Summary for Pond CB P4: CB P4

Inflow Area = 0.803 ac, 47.68% Impervious, Inflow Depth > 3.50" for 25-YR event
Inflow = 2.82 cfs @ 12.17 hrs, Volume= 0.234 af
Outflow = 2.82 cfs @ 12.17 hrs, Volume= 0.234 af, Atten= 0%, Lag= 0.0 min
Primary = 2.82 cfs @ 12.17 hrs, Volume= 0.234 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 270.47' @ 12.22 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	267.90'	12.0" Round 12" Culvert L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 267.90' / 267.60' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=2.25 cfs @ 12.17 hrs HW=270.32' TW=269.97' (Dynamic Tailwater)
↑**1=12" Culvert** (Inlet Controls 2.25 cfs @ 2.86 fps)

Summary for Pond CB P5: CB P5

Inflow Area = 0.174 ac, 100.00% Impervious, Inflow Depth > 4.87" for 25-YR event
Inflow = 0.91 cfs @ 12.09 hrs, Volume= 0.071 af
Outflow = 0.91 cfs @ 12.09 hrs, Volume= 0.071 af, Atten= 0%, Lag= 0.0 min
Primary = 0.91 cfs @ 12.09 hrs, Volume= 0.071 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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Page 111

Peak Elev= 266.32' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	265.50'	12.0" Round Culvert L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 265.50' / 265.45' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.09 hrs HW=266.22' TW=266.24' (Dynamic Tailwater)

↑**1=Culvert** (Controls 0.00 cfs)

Summary for Pond CB P6: CB P6

Inflow Area = 0.326 ac, 78.95% Impervious, Inflow Depth > 4.22" for 25-YR event
Inflow = 1.49 cfs @ 12.11 hrs, Volume= 0.115 af
Outflow = 1.49 cfs @ 12.11 hrs, Volume= 0.115 af, Atten= 0%, Lag= 0.0 min
Primary = 1.49 cfs @ 12.11 hrs, Volume= 0.115 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 266.42' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	265.50'	12.0" Round Culvert L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 265.50' / 265.45' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.21 cfs @ 12.11 hrs HW=266.37' TW=266.25' (Dynamic Tailwater)

↑**1=Culvert** (Outlet Controls 1.21 cfs @ 2.22 fps)

Summary for Pond House Infiltration: House Infiltration

Inflow Area = 0.048 ac, 100.00% Impervious, Inflow Depth > 4.87" for 25-YR event
Inflow = 0.25 cfs @ 12.09 hrs, Volume= 0.020 af
Outflow = 0.01 cfs @ 9.60 hrs, Volume= 0.009 af, Atten= 97%, Lag= 0.0 min
Discarded = 0.01 cfs @ 9.60 hrs, Volume= 0.009 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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Page 112

Peak Elev= 271.53' @ 15.77 hrs Surf.Area= 330 sf Storage= 508 cf

Plug-Flow detention time= 156.7 min calculated for 0.009 af (46% of inflow)

Center-of-Mass det. time= 53.5 min (788.1 - 734.6)

Volume	Invert	Avail.Storage	Storage Description
#1	270.00'	373 cf	ADS_StormTech SC-740 x 8 Inside #2 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 2 rows
#2	269.00'	445 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 1,485 cf Overall - 373 cf Embedded = 1,112 cf x 40.0% Voids
		818 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
269.00	330	0	0
273.50	330	1,485	1,485

Device	Routing	Invert	Outlet Devices
#1	Discarded	269.00'	1.040 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.01 cfs @ 9.60 hrs HW=269.05' (Free Discharge)↑ **1=Exfiltration** (Exfiltration Controls 0.01 cfs)**Summary for Pond Post Existing Pond: Existing Pond**

Inflow Area = 17.672 ac, 15.88% Impervious, Inflow Depth > 2.13" for 25-YR event
 Inflow = 33.68 cfs @ 12.22 hrs, Volume= 3.135 af
 Outflow = 12.45 cfs @ 12.67 hrs, Volume= 1.864 af, Atten= 63%, Lag= 27.2 min
 Primary = 12.45 cfs @ 12.67 hrs, Volume= 1.864 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 263.48' @ 12.67 hrs Surf.Area= 53,912 sf Storage= 63,113 cf

Plug-Flow detention time= 149.4 min calculated for 1.858 af (59% of inflow)

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Page 113

Center-of-Mass det. time= 71.3 min (883.6 - 812.3)

Volume	Invert	Avail.Storage	Storage Description
#1	262.00'	64,223 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
262.00	31,406	0	0
263.50	54,224	64,223	64,223

Device	Routing	Invert	Outlet Devices
#1	Primary	263.30'	70.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=12.36 cfs @ 12.67 hrs HW=263.48' TW=0.00' (Dynamic Tailwater)

↑**1=Broad-Crested Rectangular Weir**(Weir Controls 12.36 cfs @ 0.99 fps)

Summary for Pond Stormceptor 1: Stormceptor 1

Inflow Area = 1.771 ac, 21.36% Impervious, Inflow Depth > 1.27" for 25-YR event
 Inflow = 1.54 cfs @ 12.20 hrs, Volume= 0.187 af
 Outflow = 1.54 cfs @ 12.20 hrs, Volume= 0.187 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.54 cfs @ 12.20 hrs, Volume= 0.187 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 265.98' @ 12.20 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	265.20'	12.0" Round 12" Culvert L= 80.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 265.20' / 264.80' S= 0.0050 ' / ' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.54 cfs @ 12.20 hrs HW=265.98' TW=265.31' (Dynamic Tailwater)

↑**1=12" Culvert** (Barrel Controls 1.54 cfs @ 3.21 fps)

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Page 114

Summary for Pond Stormceptor 2: Stormceptor 2

Inflow Area = 1.268 ac, 28.14% Impervious, Inflow Depth > 1.23" for 25-YR event
Inflow = 1.45 cfs @ 12.34 hrs, Volume= 0.130 af
Outflow = 1.45 cfs @ 12.34 hrs, Volume= 0.130 af, Atten= 0%, Lag= 0.0 min
Primary = 1.45 cfs @ 12.34 hrs, Volume= 0.130 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 266.42' @ 12.35 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	265.50'	12.0" Round 12" Culvert L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 265.50' / 265.00' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.38 cfs @ 12.34 hrs HW=266.42' TW=266.19' (Dynamic Tailwater)
↑**1=12" Culvert** (Outlet Controls 1.38 cfs @ 2.40 fps)

Summary for Pond Stormceptor 3: Stormceptor 3

Inflow Area = 1.557 ac, 34.31% Impervious, Inflow Depth > 2.96" for 25-YR event
Inflow = 2.99 cfs @ 12.15 hrs, Volume= 0.385 af
Outflow = 2.99 cfs @ 12.15 hrs, Volume= 0.385 af, Atten= 0%, Lag= 0.0 min
Primary = 2.99 cfs @ 12.15 hrs, Volume= 0.385 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 267.52' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	266.40'	12.0" Round 12" Culvert L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 266.40' / 266.00' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=2.98 cfs @ 12.15 hrs HW=267.52' TW=266.39' (Dynamic Tailwater)
↑**1=12" Culvert** (Inlet Controls 2.98 cfs @ 3.80 fps)

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Page 115

Summary for Pond Stormceptor 4: Stormceptor 4

Inflow Area = 2.571 ac, 29.10% Impervious, Inflow Depth > 2.25" for 25-YR event
Inflow = 5.38 cfs @ 12.20 hrs, Volume= 0.481 af
Outflow = 5.38 cfs @ 12.20 hrs, Volume= 0.481 af, Atten= 0%, Lag= 0.0 min
Primary = 5.38 cfs @ 12.20 hrs, Volume= 0.481 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 269.35' @ 12.27 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	266.60'	12.0" Round 12" Culvert L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 266.60' / 266.00' S= 0.0150 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=5.28 cfs @ 12.20 hrs HW=269.31' TW=267.36' (Dynamic Tailwater)
↑**1=12" Culvert** (Inlet Controls 5.28 cfs @ 6.72 fps)

Summary for Pond STORMCEPTOR 5: STORMCEPTOR 5

Inflow Area = 0.500 ac, 86.27% Impervious, Inflow Depth > 4.45" for 25-YR event
Inflow = 2.38 cfs @ 12.10 hrs, Volume= 0.185 af
Outflow = 2.38 cfs @ 12.10 hrs, Volume= 0.185 af, Atten= 0%, Lag= 0.0 min
Primary = 2.38 cfs @ 12.10 hrs, Volume= 0.185 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 266.27' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	265.20'	12.0" Round Culvert L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 265.20' / 265.10' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=2.37 cfs @ 12.10 hrs HW=266.27' TW=265.54' (Dynamic Tailwater)
↑**1=Culvert** (Barrel Controls 2.37 cfs @ 3.52 fps)

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Page 116

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentHouse: House

Runoff Area=2,100 sf 100.00% Impervious Runoff Depth>6.51"
Flow Length=30' Slope=0.3000 '/' Tc=6.0 min CN=98 Runoff=0.34 cfs 0.026 af

SubcatchmentPost 1a: Post 1a

Runoff Area=690,766 sf 11.01% Impervious Runoff Depth>2.48"
Flow Length=936' Slope=0.0530 '/' Tc=22.1 min UI Adjusted CN=59 Runoff=31.42 cfs 3.271 af

SubcatchmentPost 1b: Post 1b

Runoff Area=49,032 sf 16.57% Impervious Runoff Depth>2.49"
Flow Length=264' Slope=0.0530 '/' Tc=7.8 min UI Adjusted CN=59 Runoff=3.22 cfs 0.234 af

SubcatchmentPost 1c: Post 1c

Runoff Area=28,115 sf 29.72% Impervious Runoff Depth>3.18"
Flow Length=497' Slope=0.0330 '/' Tc=12.6 min UI Adjusted CN=66 Runoff=2.06 cfs 0.171 af

SubcatchmentPost 1d: Post 1d

Runoff Area=46,660 sf 17.82% Impervious Runoff Depth>2.58"
Flow Length=445' Slope=0.0370 '/' Tc=13.5 min UI Adjusted CN=60 Runoff=2.69 cfs 0.230 af

SubcatchmentPost 1e: Post 1e

Runoff Area=8,566 sf 84.33% Impervious Runoff Depth>5.78"
Flow Length=335' Slope=0.0130 '/' Tc=8.2 min CN=90 Runoff=1.22 cfs 0.095 af

SubcatchmentPost 1f: Post 1f

Runoff Area=77,001 sf 20.66% Impervious Runoff Depth>3.91"
Flow Length=535' Slope=0.0600 '/' Tc=8.9 min UI Adjusted CN=73 Runoff=7.71 cfs 0.577 af

SubcatchmentPost 1g: Post 1g

Runoff Area=34,971 sf 47.68% Impervious Runoff Depth>5.11"
Flow Length=605' Slope=0.0230 '/' Tc=12.3 min CN=84 Runoff=4.04 cfs 0.342 af

SubcatchmentPost 2a: Post 2a

Runoff Area=689,243 sf 14.11% Impervious Runoff Depth>3.38"
Flow Length=863' Slope=0.0640 '/' Tc=14.9 min UI Adjusted CN=68 Runoff=51.05 cfs 4.461 af

SubcatchmentPost 2b: Post 2b

Runoff Area=12,743 sf 13.17% Impervious Runoff Depth>2.88"
Flow Length=242' Slope=0.0270 '/' Tc=9.2 min UI Adjusted CN=63 Runoff=0.93 cfs 0.070 af

SubcatchmentPost 2c: Post 2c

Runoff Area=56,127 sf 22.11% Impervious Runoff Depth>4.12"
Flow Length=499' Slope=0.0300 '/' Tc=11.2 min UI Adjusted CN=75 Runoff=5.57 cfs 0.443 af

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Page 117

SubcatchmentPost 2d: Post 2d

Runoff Area=11,684 sf 92.94% Impervious Runoff Depth>6.44"
Flow Length=739' Slope=0.0220 '/' Tc=8.5 min CN=97 Runoff=1.74 cfs 0.144 af

SubcatchmentPost 3a: Post 3a

Runoff Area=221,701 sf 0.39% Impervious Runoff Depth>4.24"
Flow Length=522' Slope=0.0960 '/' Tc=6.9 min CN=76 Runoff=25.75 cfs 1.797 af

SubcatchmentPost 3b: Post 3b

Runoff Area=7,576 sf 100.00% Impervious Runoff Depth>6.51"
Flow Length=570' Slope=0.0280 '/' Tc=6.0 min CN=98 Runoff=1.22 cfs 0.094 af

SubcatchmentPost 3c: Post 3c

Runoff Area=14,201 sf 78.95% Impervious Runoff Depth>5.88"
Flow Length=571' Slope=0.0280 '/' Tc=8.2 min CN=91 Runoff=2.04 cfs 0.160 af

SubcatchmentPost 4a: Post 4a

Runoff Area=5,922 sf 23.96% Impervious Runoff Depth>2.89"
Flow Length=105' Slope=0.0250 '/' Tc=6.0 min UI Adjusted CN=63 Runoff=0.48 cfs 0.033 af

SubcatchmentPost 4b: Post 4b

Runoff Area=5,403 sf 20.97% Impervious Runoff Depth>2.89"
Flow Length=112' Slope=0.0490 '/' Tc=6.0 min UI Adjusted CN=63 Runoff=0.44 cfs 0.030 af

Reach FILTER STRIP 1A-1: FILTER STRIP 1A-1

Avg. Flow Depth=0.57' Max Vel=0.46 fps Inflow=4.47 cfs 0.352 af
n=0.400 L=194.0' S=0.0567 '/' Capacity=2.83 cfs Outflow=3.70 cfs 0.350 af

Reach FILTER STRIP 1A-2: FILTER STRIP 1A-2

Avg. Flow Depth=0.31' Max Vel=0.35 fps Inflow=3.26 cfs 0.251 af
n=0.400 L=202.0' S=0.0743 '/' Capacity=7.62 cfs Outflow=2.66 cfs 0.249 af

Reach FILTER STRIP 1A-3: FILTER STRIP 1A-3

Avg. Flow Depth=0.48' Max Vel=0.49 fps Inflow=8.69 cfs 0.776 af
n=0.400 L=177.0' S=0.0791 '/' Capacity=6.70 cfs Outflow=6.10 cfs 0.773 af

Reach FILTER STRIP 2A: FILTER STRIP 2A

Avg. Flow Depth=0.55' Max Vel=0.22 fps Inflow=5.43 cfs 0.577 af
n=0.400 L=106.0' S=0.0142 '/' Capacity=3.97 cfs Outflow=4.81 cfs 0.573 af

Reach Filter Strip 2B: Filter Strip 2B

Avg. Flow Depth=0.23' Max Vel=0.32 fps Inflow=0.93 cfs 0.070 af
n=0.240 L=225.0' S=0.0311 '/' Capacity=3.50 cfs Outflow=0.67 cfs 0.069 af

Reach Post: Post

Inflow=118.47 cfs 10.575 af
Outflow=118.47 cfs 10.575 af

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Page 118

Reach Post East: Post East

Inflow=76.07 cfs 5.870 af

Outflow=76.07 cfs 5.870 af

Reach Post West: Post West Pond

Inflow=44.12 cfs 4.705 af

Outflow=44.12 cfs 4.705 af

Reach Stream: IntermittentStream

Avg. Flow Depth=0.54' Max Vel=1.29 fps Inflow=3.23 cfs 0.254 af
n=0.040 L=438.0' S=0.0048 '/ Capacity=5.56 cfs Outflow=2.79 cfs 0.253 af

Pond BASIN 1: BASIN 1

Peak Elev=268.34' Storage=2,011 cf Inflow=3.22 cfs 0.234 af
Discarded=0.10 cfs 0.039 af Primary=2.42 cfs 0.181 af Outflow=2.52 cfs 0.220 af

Pond BASIN 2: BASIN 2

Peak Elev=269.33' Storage=1,401 cf Inflow=2.69 cfs 0.230 af
Discarded=0.09 cfs 0.052 af Primary=2.47 cfs 0.156 af Outflow=2.56 cfs 0.209 af

Pond BASIN 3: BASIN 3

Peak Elev=269.60' Storage=2,181 cf Inflow=5.57 cfs 0.443 af
Discarded=0.04 cfs 0.009 af Primary=4.33 cfs 0.433 af Outflow=4.37 cfs 0.442 af

Pond BASIN 4: BASIN 4

Peak Elev=270.97' Storage=9,136 cf Inflow=11.62 cfs 0.919 af
Discarded=0.28 cfs 0.120 af Primary=1.56 cfs 0.428 af Secondary=7.13 cfs 0.348 af Outflow=8.96 cfs 0.896 af

Pond CB P1: CB P1

Peak Elev=273.00' Inflow=0.93 cfs 0.070 af
12.0" Round Culvert n=0.012 L=150.0' S=0.0100 '/ Outflow=0.93 cfs 0.070 af

Pond CB P2: CB P2

Peak Elev=268.06' Inflow=2.06 cfs 0.171 af
12.0" Round Culvert n=0.013 L=10.0' S=0.0100 '/ Outflow=2.06 cfs 0.171 af

Pond CB P3: CB P3

Peak Elev=267.36' Inflow=1.22 cfs 0.095 af
12.0" Round Culvert n=0.012 L=10.0' S=0.0100 '/ Outflow=1.22 cfs 0.095 af

Pond CB P4: CB P4

Peak Elev=271.49' Inflow=4.04 cfs 0.342 af
12.0" Round Culvert n=0.012 L=30.0' S=0.0100 '/ Outflow=4.04 cfs 0.342 af

Pond CB P5: CB P5

Peak Elev=266.70' Inflow=1.22 cfs 0.094 af
12.0" Round Culvert n=0.012 L=5.0' S=0.0100 '/ Outflow=1.22 cfs 0.094 af

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Page 119

Pond CB P6: CB P6

Peak Elev=266.89' Inflow=2.04 cfs 0.160 af
12.0" Round Culvert n=0.012 L=5.0' S=0.0100 '/' Outflow=2.04 cfs 0.160 af

Pond House Infiltration: House Infiltration

Peak Elev=273.01' Storage=754 cf Inflow=0.34 cfs 0.026 af
Outflow=0.01 cfs 0.009 af

Pond Post Existing Pond: Existing Pond

Peak Elev=263.79' Storage=64,223 cf Inflow=55.91 cfs 5.103 af
Outflow=60.66 cfs 3.820 af

Pond Stormceptor1: Stormceptor1

Peak Elev=267.81' Inflow=4.47 cfs 0.352 af
12.0" Round Culvert n=0.013 L=80.0' S=0.0050 '/' Outflow=4.47 cfs 0.352 af

Pond Stormceptor2: Stormceptor2

Peak Elev=266.99' Inflow=3.26 cfs 0.251 af
12.0" Round Culvert n=0.012 L=50.0' S=0.0100 '/' Outflow=3.26 cfs 0.251 af

Pond Stormceptor3: Stormceptor3

Peak Elev=268.96' Inflow=5.43 cfs 0.577 af
12.0" Round Culvert n=0.012 L=40.0' S=0.0100 '/' Outflow=5.43 cfs 0.577 af

Pond Stormceptor4: Stormceptor4

Peak Elev=272.69' Inflow=8.69 cfs 0.776 af
12.0" Round Culvert n=0.012 L=40.0' S=0.0150 '/' Outflow=8.69 cfs 0.776 af

Pond STORMCEPTOR5: STORMCEPTOR5

Peak Elev=266.63' Inflow=3.23 cfs 0.254 af
12.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=3.23 cfs 0.254 af

Total Runoff Area = 45.037 ac Runoff Volume = 12.177 af Average Runoff Depth = 3.24"
85.36% Pervious = 38.444 ac 14.64% Impervious = 6.593 ac

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Page 120

Summary for Subcatchment House: House

Runoff = 0.34 cfs @ 12.09 hrs, Volume= 0.026 af, Depth> 6.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=7.30"

Area (sf)	CN	Description
2,100	98	Unconnected pavement, HSG A
* 0	98	Unconnected pavement, HSG B
0	98	Unconnected pavement, HSG C
0	98	Unconnected pavement, HSG D
0	32	Woods/grass comb., Good, HSG A
0	39	>75% Grass cover, Good, HSG A
0	58	Woods/grass comb., Good, HSG B
0	61	>75% Grass cover, Good, HSG B
0	72	Woods/grass comb., Good, HSG C
0	74	>75% Grass cover, Good, HSG C
0	79	Woods/grass comb., Good, HSG D
0	80	>75% Grass cover, Good, HSG D
2,100	98	Weighted Average
2,100	98	100.00% Impervious Area
2,100		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	30	0.3000	3.01		Lag/CN Method, Houses
0.2	30	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Post 1a: Post 1a

Runoff = 31.42 cfs @ 12.33 hrs, Volume= 3.271 af, Depth> 2.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 121

Area (sf)	CN	Adj	Description
3,464	98		Unconnected pavement, HSG A
66,368	98		Unconnected pavement, HSG B
6,212	98		Unconnected pavement, HSG C
0	98		Unconnected pavement, HSG D
46,666	32		Woods/grass comb., Good, HSG A
73,867	39		>75% Grass cover, Good, HSG A
158,275	58		Woods/grass comb., Good, HSG B
258,651	61		>75% Grass cover, Good, HSG B
61,008	72		Woods/grass comb., Good, HSG C
16,255	74		>75% Grass cover, Good, HSG C
0	79		Woods/grass comb., Good, HSG D
0	80		>75% Grass cover, Good, HSG D
690,766	61	59	Weighted Average, UI Adjusted
614,722	57	57	88.99% Pervious Area
76,044	98	98	11.01% Impervious Area
76,044			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.1	936	0.0530	0.71		Lag/CN Method, Post 1a

Summary for Subcatchment Post 1b: Post 1b

Runoff = 3.22 cfs @ 12.12 hrs, Volume= 0.234 af, Depth> 2.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 122

Area (sf)	CN	Adj	Description
3,067	98		Unconnected pavement, HSG A
5,058	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
0	98		Unconnected pavement, HSG D
0	32		Woods/grass comb., Good, HSG A
11,103	39		>75% Grass cover, Good, HSG A
0	58		Woods/grass comb., Good, HSG B
29,804	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
0	79		Woods/grass comb., Good, HSG D
0	80		>75% Grass cover, Good, HSG D
49,032	62	59	Weighted Average, UI Adjusted
40,907	55	55	83.43% Pervious Area
8,125	98	98	16.57% Impervious Area
8,125			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.8	264	0.0530	0.56		Lag/CN Method, Post 1d

Summary for Subcatchment Post 1c: Post 1c

Runoff = 2.06 cfs @ 12.18 hrs, Volume= 0.171 af, Depth> 3.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 123

Area (sf)	CN	Adj	Description
1,896	98		Unconnected pavement, HSG A
6,460	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
0	98		Unconnected pavement, HSG D
0	32		Woods/grass comb., Good, HSG A
21	39		>75% Grass cover, Good, HSG A
0	58		Woods/grass comb., Good, HSG B
19,738	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
0	79		Woods/grass comb., Good, HSG D
0	80		>75% Grass cover, Good, HSG D
28,115	72	66	Weighted Average, UI Adjusted
19,759	61	61	70.28% Pervious Area
8,356	98	98	29.72% Impervious Area
8,356			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	497	0.0330	0.66		Lag/CN Method, Post 1c

Summary for Subcatchment Post 1d: Post 1d

Runoff = 2.69 cfs @ 12.20 hrs, Volume= 0.230 af, Depth> 2.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 124

Area (sf)	CN	Adj	Description
2,113	98		Unconnected pavement, HSG A
6,061	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
141	98		Unconnected pavement, HSG D
0	32		Woods/grass comb., Good, HSG A
9,211	39		>75% Grass cover, Good, HSG A
0	58		Woods/grass comb., Good, HSG B
28,313	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
0	79		Woods/grass comb., Good, HSG D
821	80		>75% Grass cover, Good, HSG D
46,660	64	60	Weighted Average, UI Adjusted
38,345	56	56	82.18% Pervious Area
8,315	98	98	17.82% Impervious Area
8,315			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.5	445	0.0370	0.55		Lag/CN Method, Post 1d

Summary for Subcatchment Post 1e: Post 1e

Runoff = 1.22 cfs @ 12.11 hrs, Volume= 0.095 af, Depth> 5.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 125

Area (sf)	CN	Description
2,800	98	Unconnected pavement, HSG A
4,424	98	Unconnected pavement, HSG B
0	98	Unconnected pavement, HSG C
0	98	Unconnected pavement, HSG D
0	32	Woods/grass comb., Good, HSG A
809	39	>75% Grass cover, Good, HSG A
0	58	Woods/grass comb., Good, HSG B
533	61	>75% Grass cover, Good, HSG B
0	72	Woods/grass comb., Good, HSG C
0	74	>75% Grass cover, Good, HSG C
0	79	Woods/grass comb., Good, HSG D
0	80	>75% Grass cover, Good, HSG D
8,566	90	Weighted Average
1,342	48	15.67% Pervious Area
7,224	98	84.33% Impervious Area
7,224		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	335	0.0130	0.68		Lag/CN Method, Post 1e

Summary for Subcatchment Post 1f: Post 1f

Runoff = 7.71 cfs @ 12.13 hrs, Volume= 0.577 af, Depth> 3.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 126

Area (sf)	CN	Adj	Description
0	98		Unconnected pavement, HSG A
9,773	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
6,135	98		Unconnected pavement, HSG D
0	32		Woods/grass comb., Good, HSG A
0	39		>75% Grass cover, Good, HSG A
2,765	58		Woods/grass comb., Good, HSG B
29,605	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
8,761	79		Woods/grass comb., Good, HSG D
19,962	80		>75% Grass cover, Good, HSG D
77,001	76	73	Weighted Average, UI Adjusted
61,093	70	70	79.34% Pervious Area
15,908	98	98	20.66% Impervious Area
15,908			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	535	0.0600	1.00		Lag/CN Method, Post 1f

Summary for Subcatchment Post 1g: Post 1g

Runoff = 4.04 cfs @ 12.17 hrs, Volume= 0.342 af, Depth> 5.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 127

Area (sf)	CN	Description
0	98	Unconnected pavement, HSG A
10,065	98	Unconnected pavement, HSG B
0	98	Unconnected pavement, HSG C
6,608	98	Unconnected pavement, HSG D
0	32	Woods/grass comb., Good, HSG A
0	39	>75% Grass cover, Good, HSG A
0	58	Woods/grass comb., Good, HSG B
8,268	61	>75% Grass cover, Good, HSG B
0	72	Woods/grass comb., Good, HSG C
0	74	>75% Grass cover, Good, HSG C
264	79	Woods/grass comb., Good, HSG D
9,766	80	>75% Grass cover, Good, HSG D
34,971	84	Weighted Average
18,298	71	52.32% Pervious Area
16,673	98	47.68% Impervious Area
16,673		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	605	0.0230	0.82		Lag/CN Method, Post 1g

Summary for Subcatchment Post 2a: Post 2a

Runoff = 51.05 cfs @ 12.21 hrs, Volume= 4.461 af, Depth> 3.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 128

Area (sf)	CN	Adj	Description
0	98		Unconnected pavement, HSG A
61,228	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
36,052	98		Unconnected pavement, HSG D
0	32		Woods/grass comb., Good, HSG A
0	39		>75% Grass cover, Good, HSG A
197,068	58		Woods/grass comb., Good, HSG B
213,835	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
78,890	79		Woods/grass comb., Good, HSG D
102,170	80		>75% Grass cover, Good, HSG D
689,243	70	68	Weighted Average, UI Adjusted
591,963	66	66	85.89% Pervious Area
97,280	98	98	14.11% Impervious Area
97,280			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.9	863	0.0640	0.97		Lag/CN Method, Post 2a

Summary for Subcatchment Post 2b: Post 2b

Runoff = 0.93 cfs @ 12.14 hrs, Volume= 0.070 af, Depth> 2.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 129

Area (sf)	CN	Adj	Description
0	98		Unconnected pavement, HSG A
1,678	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
0	98		Unconnected pavement, HSG D
0	32		Woods/grass comb., Good, HSG A
0	39		>75% Grass cover, Good, HSG A
0	58		Woods/grass comb., Good, HSG B
11,065	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
0	79		Woods/grass comb., Good, HSG D
0	80		>75% Grass cover, Good, HSG D
12,743	66	63	Weighted Average, UI Adjusted
11,065	61	61	86.83% Pervious Area
1,678	98	98	13.17% Impervious Area
1,678			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	242	0.0270	0.44		Lag/CN Method, Post 2b

Summary for Subcatchment Post 2c: Post 2c

Runoff = 5.57 cfs @ 12.16 hrs, Volume= 0.443 af, Depth> 4.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=7.30"

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Page 130

Area (sf)	CN	Adj	Description
0	98		Unconnected pavement, HSG A
2,740	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
9,668	98		Unconnected pavement, HSG D
0	32		Woods/grass comb., Good, HSG A
0	39		>75% Grass cover, Good, HSG A
0	58		Woods/grass comb., Good, HSG B
18,069	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
0	79		Woods/grass comb., Good, HSG D
25,650	80		>75% Grass cover, Good, HSG D
56,127	78	75	Weighted Average, UI Adjusted
43,719	72	72	77.89% Pervious Area
12,408	98	98	22.11% Impervious Area
12,408			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	499	0.0300	0.74		Lag/CN Method, Post 2c

Summary for Subcatchment Post 2d: Post 2d

Runoff = 1.74 cfs @ 12.12 hrs, Volume= 0.144 af, Depth> 6.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=7.30"

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Page 131

Area (sf)	CN	Description
0	98	Unconnected pavement, HSG A
4,136	98	Unconnected pavement, HSG B
0	98	Unconnected pavement, HSG C
6,723	98	Unconnected pavement, HSG D
0	32	Woods/grass comb., Good, HSG A
0	39	>75% Grass cover, Good, HSG A
0	58	Woods/grass comb., Good, HSG B
0	61	>75% Grass cover, Good, HSG B
0	72	Woods/grass comb., Good, HSG C
0	74	>75% Grass cover, Good, HSG C
0	79	Woods/grass comb., Good, HSG D
825	80	>75% Grass cover, Good, HSG D
11,684	97	Weighted Average
825	80	7.06% Pervious Area
10,859	98	92.94% Impervious Area
10,859		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	739	0.0220	1.46		Lag/CN Method, Post 2d

Summary for Subcatchment Post 3a: Post 3a

Runoff = 25.75 cfs @ 12.10 hrs, Volume= 1.797 af, Depth> 4.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 132

Area (sf)	CN	Description			
0	98	Unconnected pavement, HSG A			
0	98	Unconnected pavement, HSG B			
0	98	Unconnected pavement, HSG C			
866	98	Unconnected pavement, HSG D			
0	32	Woods/grass comb., Good, HSG A			
0	39	>75% Grass cover, Good, HSG A			
27,594	58	Woods/grass comb., Good, HSG B			
4,601	61	>75% Grass cover, Good, HSG B			
0	72	Woods/grass comb., Good, HSG C			
0	74	>75% Grass cover, Good, HSG C			
167,810	79	Woods/grass comb., Good, HSG D			
20,830	80	>75% Grass cover, Good, HSG D			
221,701	76	Weighted Average			
220,835	76	99.61% Pervious Area			
866	98	0.39% Impervious Area			
866		100.00% Unconnected			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	522	0.0960	1.26	Lag/CN Method, Post 3a	

Summary for Subcatchment Post 3b: Post 3b

Runoff = 1.22 cfs @ 12.09 hrs, Volume= 0.094 af, Depth> 6.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 133

Area (sf)	CN	Description
0	98	Unconnected pavement, HSG A
7,576	98	Unconnected pavement, HSG B
0	98	Unconnected pavement, HSG C
0	98	Unconnected pavement, HSG D
0	32	Woods/grass comb., Good, HSG A
0	39	>75% Grass cover, Good, HSG A
0	58	Woods/grass comb., Good, HSG B
0	61	>75% Grass cover, Good, HSG B
0	72	Woods/grass comb., Good, HSG C
0	74	>75% Grass cover, Good, HSG C
0	79	Woods/grass comb., Good, HSG D
0	80	>75% Grass cover, Good, HSG D
7,576	98	Weighted Average
7,576	98	100.00% Impervious Area
7,576		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	570	0.0280	1.66		Lag/CN Method, Post 3b
5.7	570	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Post 3c: Post 3c

Runoff = 2.04 cfs @ 12.11 hrs, Volume= 0.160 af, Depth> 5.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 134

Area (sf)	CN	Description
0	98	Unconnected pavement, HSG A
10,644	98	Unconnected pavement, HSG B
0	98	Unconnected pavement, HSG C
568	98	Unconnected pavement, HSG D
0	32	Woods/grass comb., Good, HSG A
0	39	>75% Grass cover, Good, HSG A
0	58	Woods/grass comb., Good, HSG B
2,771	61	>75% Grass cover, Good, HSG B
0	72	Woods/grass comb., Good, HSG C
0	74	>75% Grass cover, Good, HSG C
0	79	Woods/grass comb., Good, HSG D
218	80	>75% Grass cover, Good, HSG D
14,201	91	Weighted Average
2,989	62	21.05% Pervious Area
11,212	98	78.95% Impervious Area
11,212		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	571	0.0280	1.17		Lag/CN Method, Post 3c

Summary for Subcatchment Post 4a: Post 4a

Runoff = 0.48 cfs @ 12.10 hrs, Volume= 0.033 af, Depth> 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 135

Area (sf)	CN	Adj	Description
0	98		Unconnected pavement, HSG A
1,419	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
0	98		Unconnected pavement, HSG D
0	32		Woods/grass comb., Good, HSG A
0	39		>75% Grass cover, Good, HSG A
3,696	58		Woods/grass comb., Good, HSG B
807	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
0	79		Woods/grass comb., Good, HSG D
0	80		>75% Grass cover, Good, HSG D
5,922	68	63	Weighted Average, UI Adjusted
4,503	59	59	76.04% Pervious Area
1,419	98	98	23.96% Impervious Area
1,419			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	105	0.0250	0.38		Lag/CN Method, Post 4a
4.7	105	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Post 4b: Post 4b

Runoff = 0.44 cfs @ 12.10 hrs, Volume= 0.030 af, Depth> 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
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Page 136

Area (sf)	CN	Adj	Description
0	98		Unconnected pavement, HSG A
1,133	98		Unconnected pavement, HSG B
0	98		Unconnected pavement, HSG C
0	98		Unconnected pavement, HSG D
0	32		Woods/grass comb., Good, HSG A
0	39		>75% Grass cover, Good, HSG A
3,625	58		Woods/grass comb., Good, HSG B
645	61		>75% Grass cover, Good, HSG B
0	72		Woods/grass comb., Good, HSG C
0	74		>75% Grass cover, Good, HSG C
0	79		Woods/grass comb., Good, HSG D
0	80		>75% Grass cover, Good, HSG D
5,403	67	63	Weighted Average, UI Adjusted
4,270	58	58	79.03% Pervious Area
1,133	98	98	20.97% Impervious Area
1,133			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	112	0.0490	0.52		Lag/CN Method, Post 4b
3.6	112	Total, Increased to minimum Tc = 6.0 min			

Summary for Reach FILTER STRIP 1A-1: FILTER STRIP 1A-1

Inflow Area = 1.771 ac, 21.36% Impervious, Inflow Depth > 2.39" for 100-YR event
Inflow = 4.47 cfs @ 12.20 hrs, Volume= 0.352 af
Outflow = 3.70 cfs @ 12.30 hrs, Volume= 0.350 af, Atten= 17%, Lag= 6.2 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.46 fps, Min. Travel Time= 7.1 min
Avg. Velocity = 0.19 fps, Avg. Travel Time= 17.1 min

Peak Storage= 1,569 cf @ 12.30 hrs
Average Depth at Peak Storage= 0.57'
Bank-Full Depth= 0.50' Flow Area= 6.7 sf, Capacity= 2.83 cfs

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Page 137

20.00' x 0.50' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush

Length= 194.0' Slope= 0.0567 '/'

Inlet Invert= 265.00', Outlet Invert= 254.00'



Summary for Reach FILTER STRIP 1A-2: FILTER STRIP 1A-2

Inflow Area = 1.268 ac, 28.14% Impervious, Inflow Depth > 2.38" for 100-YR event

Inflow = 3.26 cfs @ 12.22 hrs, Volume= 0.251 af

Outflow = 2.66 cfs @ 12.35 hrs, Volume= 0.249 af, Atten= 19%, Lag= 7.9 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.35 fps, Min. Travel Time= 9.6 min

Avg. Velocity = 0.12 fps, Avg. Travel Time= 27.3 min

Peak Storage= 1,525 cf @ 12.35 hrs

Average Depth at Peak Storage= 0.31'

Bank-Full Depth= 0.50' Flow Area= 15.7 sf, Capacity= 7.62 cfs

47.00' x 0.50' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush

Length= 202.0' Slope= 0.0743 '/'

Inlet Invert= 266.00', Outlet Invert= 251.00'



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Page 138

Summary for Reach FILTER STRIP 1A-3: FILTER STRIP 1A-3

Inflow Area = 2.571 ac, 29.10% Impervious, Inflow Depth > 3.62" for 100-YR event
Inflow = 8.69 cfs @ 12.50 hrs, Volume= 0.776 af
Outflow = 6.10 cfs @ 12.29 hrs, Volume= 0.773 af, Atten= 30%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.49 fps, Min. Travel Time= 6.1 min
Avg. Velocity = 0.23 fps, Avg. Travel Time= 12.6 min

Peak Storage= 2,214 cf @ 12.29 hrs
Average Depth at Peak Storage= 0.48'
Bank-Full Depth= 0.50' Flow Area= 13.3 sf, Capacity= 6.70 cfs

40.00' x 0.50' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush
Length= 177.0' Slope= 0.0791 '/'
Inlet Invert= 267.00', Outlet Invert= 253.00'



Summary for Reach FILTER STRIP 2A: FILTER STRIP 2A

Inflow Area = 1.557 ac, 34.31% Impervious, Inflow Depth > 4.45" for 100-YR event
Inflow = 5.43 cfs @ 12.22 hrs, Volume= 0.577 af
Outflow = 4.81 cfs @ 12.33 hrs, Volume= 0.573 af, Atten= 11%, Lag= 6.2 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.22 fps, Min. Travel Time= 7.9 min
Avg. Velocity = 0.09 fps, Avg. Travel Time= 19.7 min

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Page 139

Peak Storage= 2,272 cf @ 12.33 hrs
Average Depth at Peak Storage= 0.55'
Bank-Full Depth= 0.50' Flow Area= 18.7 sf, Capacity= 3.97 cfs

56.00' x 0.50' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush
Length= 106.0' Slope= 0.0142 '/'
Inlet Invert= 266.00', Outlet Invert= 264.50'



Summary for Reach Filter Strip 2B: Filter Strip 2B

Inflow Area = 0.293 ac, 13.17% Impervious, Inflow Depth > 2.88" for 100-YR event
Inflow = 0.93 cfs @ 12.14 hrs, Volume= 0.070 af
Outflow = 0.67 cfs @ 12.26 hrs, Volume= 0.069 af, Atten= 28%, Lag= 7.0 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.32 fps, Min. Travel Time= 11.9 min
Avg. Velocity = 0.14 fps, Avg. Travel Time= 26.9 min

Peak Storage= 479 cf @ 12.26 hrs
Average Depth at Peak Storage= 0.23'
Bank-Full Depth= 0.50' Flow Area= 6.7 sf, Capacity= 3.50 cfs

20.00' x 0.50' deep Parabolic Channel, n= 0.240 Sheet flow over Dense Grass
Length= 225.0' Slope= 0.0311 '/'
Inlet Invert= 271.00', Outlet Invert= 264.00'

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Page 140



Summary for Reach Post: Post

Inflow Area = 44.989 ac, 14.55% Impervious, Inflow Depth > 2.82" for 100-YR event
Inflow = 118.47 cfs @ 12.27 hrs, Volume= 10.575 af
Outflow = 118.47 cfs @ 12.27 hrs, Volume= 10.575 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach Post East: Post East

Inflow Area = 23.262 ac, 14.00% Impervious, Inflow Depth > 3.03" for 100-YR event
Inflow = 76.07 cfs @ 12.26 hrs, Volume= 5.870 af
Outflow = 76.07 cfs @ 12.26 hrs, Volume= 5.870 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach Post West: Post West Pond

Inflow Area = 21.727 ac, 15.13% Impervious, Inflow Depth > 2.60" for 100-YR event
Inflow = 44.12 cfs @ 12.31 hrs, Volume= 4.705 af
Outflow = 44.12 cfs @ 12.31 hrs, Volume= 4.705 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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Page 141

Summary for Reach Stream: Intermittent Stream

Inflow Area = 0.500 ac, 86.27% Impervious, Inflow Depth > 6.10" for 100-YR event
Inflow = 3.23 cfs @ 12.10 hrs, Volume= 0.254 af
Outflow = 2.79 cfs @ 12.16 hrs, Volume= 0.253 af, Atten= 14%, Lag= 3.4 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.29 fps, Min. Travel Time= 5.7 min
Avg. Velocity = 0.50 fps, Avg. Travel Time= 14.6 min

Peak Storage= 946 cf @ 12.16 hrs
Average Depth at Peak Storage= 0.54'
Bank-Full Depth= 0.75' Flow Area= 3.5 sf, Capacity= 5.56 cfs

7.00' x 0.75' deep Parabolic Channel, n= 0.040 Winding stream, pools & shoals
Length= 438.0' Slope= 0.0048 '/'
Inlet Invert= 265.10', Outlet Invert= 263.00'



Summary for Pond BASIN 1: BASIN 1

Inflow Area = 1.126 ac, 16.57% Impervious, Inflow Depth > 2.49" for 100-YR event
Inflow = 3.22 cfs @ 12.12 hrs, Volume= 0.234 af
Outflow = 2.52 cfs @ 12.20 hrs, Volume= 0.220 af, Atten= 22%, Lag= 5.1 min
Discarded = 0.10 cfs @ 12.21 hrs, Volume= 0.039 af
Primary = 2.42 cfs @ 12.20 hrs, Volume= 0.181 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 268.34' @ 12.21 hrs Surf.Area= 1,796 sf Storage= 2,011 cf

Plug-Flow detention time=42.9 min calculated for 0.220 af (94% of inflow)

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Page 142

Center-of-Mass det. time= 23.2 min (836.4 - 813.3)

Volume	Invert	Avail.Storage	Storage Description
#1	266.00'	2,116 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
266.00	358	0	0
267.00	624	491	491
268.00	1,341	983	1,474
268.40	1,873	643	2,116

Device	Routing	Invert	Outlet Devices
#1	Discarded	266.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	268.00'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	267.00'	4.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=0.10 cfs @ 12.21 hrs HW=268.34' (Free Discharge)

└─**1=Exfiltration** (Exfiltration Controls 0.10 cfs)

Primary OutFlow Max=2.35 cfs @ 12.20 hrs HW=268.34' TW=267.78' (Dynamic Tailwater)

└─**2=Orifice/Grate** (Weir Controls 2.03 cfs @ 1.90 fps)

└─**3=Orifice/Grate** (Orifice Controls 0.31 cfs @ 3.61 fps)

Summary for Pond BASIN 2: BASIN 2

Inflow Area =	1.071 ac, 17.82% Impervious, Inflow Depth > 2.58" for 100-YR event
Inflow =	2.69 cfs @ 12.20 hrs, Volume= 0.230 af
Outflow =	2.56 cfs @ 12.25 hrs, Volume= 0.209 af, Atten= 5%, Lag= 2.9 min
Discarded =	0.09 cfs @ 12.25 hrs, Volume= 0.052 af
Primary =	2.47 cfs @ 12.25 hrs, Volume= 0.156 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 269.33' @ 12.25 hrs Surf.Area= 1,599 sf Storage= 1,401 cf

Plug-Flow detention time=44.5 min calculated for 0.209 af (91% of inflow)

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Page 143

Center-of-Mass det. time= 14.4 min (830.2 - 815.9)

Volume	Invert	Avail.Storage	Storage Description
#1	268.00'	2,728 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
268.00	660	0	0
269.00	1,207	934	934
270.00	2,382	1,795	2,728

Device	Routing	Invert	Outlet Devices
#1	Discarded	268.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	269.00'	15.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.09 cfs @ 12.25 hrs HW=269.33' (Free Discharge)↑ **1=Exfiltration** (Exfiltration Controls 0.09 cfs)**Primary OutFlow** Max=2.47 cfs @ 12.25 hrs HW=269.33' TW=266.99' (Dynamic Tailwater)↑ **2=Orifice/Grate** (Weir Controls 2.47 cfs @ 1.89 fps)**Summary for Pond BASIN 3: BASIN 3**

Inflow Area = 1.288 ac, 22.11% Impervious, Inflow Depth > 4.12" for 100-YR event
 Inflow = 5.57 cfs @ 12.16 hrs, Volume= 0.443 af
 Outflow = 4.37 cfs @ 12.24 hrs, Volume= 0.442 af, Atten= 21%, Lag= 5.3 min
 Discarded = 0.04 cfs @ 12.27 hrs, Volume= 0.009 af
 Primary = 4.33 cfs @ 12.24 hrs, Volume= 0.433 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 269.60' @ 12.25 hrs Surf.Area= 1,722 sf Storage= 2,181 cf

Plug-Flow detention time=6.4 min calculated for 0.442 af (100% of inflow)
 Center-of-Mass det. time= 5.6 min (793.6 - 788.0)

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Page 144

Volume	Invert	Avail.Storage	Storage Description
#1	267.00'	2,181 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
267.00	157	0	0
268.00	690	424	424
269.00	1,309	1,000	1,423
269.50	1,722	758	2,181

Device	Routing	Invert	Outlet Devices
#1	Discarded	267.00'	1.000 in/hr Exfiltration over Surface area
#2	Primary	269.00'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	267.00'	8.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=0.04 cfs @ 12.27 hrs HW=269.56' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.04 cfs)**Primary OutFlow** Max=4.27 cfs @ 12.24 hrs HW=269.59' TW=268.92' (Dynamic Tailwater)↑**2=Orifice/Grate** (Orifice Controls 2.90 cfs @ 3.69 fps)↑**3=Orifice/Grate** (Orifice Controls 1.38 cfs @ 3.94 fps)**Summary for Pond BASIN 4: BASIN 4**

Inflow Area = 2.571 ac, 29.10% Impervious, Inflow Depth > 4.29" for 100-YR event
 Inflow = 11.62 cfs @ 12.14 hrs, Volume= 0.919 af
 Outflow = 8.96 cfs @ 12.50 hrs, Volume= 0.896 af, Atten= 23%, Lag= 21.6 min
 Discarded = 0.28 cfs @ 12.46 hrs, Volume= 0.120 af
 Primary = 1.56 cfs @ 12.50 hrs, Volume= 0.428 af
 Secondary = 7.13 cfs @ 12.50 hrs, Volume= 0.348 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 270.97' @ 12.46 hrs Surf.Area= 4,951 sf Storage= 9,136 cf

Plug-Flow detention time= 36.6 min calculated for 0.893 af (97% of inflow)
 Center-of-Mass det. time= 27.0 min (809.6 - 782.6)

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Page 145

Volume	Invert	Avail.Storage	Storage Description
#1	267.50'	9,305 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
267.50	913	0	0
268.00	1,570	621	621
269.00	2,243	1,907	2,527
270.00	3,149	2,696	5,223
271.00	5,014	4,082	9,305

Device	Routing	Invert	Outlet Devices
#1	Discarded	267.50'	2.410 in/hr Exfiltration over Surface area
#2	Secondary	269.50'	15.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	268.00'	6.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=0.28 cfs @ 12.46 hrs HW=270.96' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.28 cfs)**Primary OutFlow** Max=0.00 cfs @ 12.50 hrs HW=270.96' TW=272.69' (Dynamic Tailwater)↑**3=Orifice/Grate** (Controls 0.00 cfs)**Secondary OutFlow** Max=0.00 cfs @ 12.50 hrs HW=270.96' TW=272.69' (Dynamic Tailwater)↑**2=Orifice/Grate** (Controls 0.00 cfs)**Summary for Pond CB P1: CB P1**

Inflow Area = 0.293 ac, 13.17% Impervious, Inflow Depth > 2.88" for 100-YR event
 Inflow = 0.93 cfs @ 12.14 hrs, Volume= 0.070 af
 Outflow = 0.93 cfs @ 12.14 hrs, Volume= 0.070 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.93 cfs @ 12.14 hrs, Volume= 0.070 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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Page 146

Peak Elev= 273.00' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	272.50'	12.0" Round 12" Culvert L= 150.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.50' / 271.00' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.92 cfs @ 12.14 hrs HW=272.99' TW=271.21' (Dynamic Tailwater)
↑**1=12" Culvert** (Inlet Controls 0.92 cfs @ 2.39 fps)

Summary for Pond CB P2: CB P2

Inflow Area = 0.645 ac, 29.72% Impervious, Inflow Depth > 3.18" for 100-YR event
Inflow = 2.06 cfs @ 12.18 hrs, Volume= 0.171 af
Outflow = 2.06 cfs @ 12.18 hrs, Volume= 0.171 af, Atten= 0%, Lag= 0.0 min
Primary = 2.06 cfs @ 12.18 hrs, Volume= 0.171 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 268.06' @ 12.24 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	265.55'	12.0" Round Culvert L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 265.55' / 265.45' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.18 hrs HW=267.36' TW=267.70' (Dynamic Tailwater)
↑**1=Culvert** (Controls 0.00 cfs)

Summary for Pond CB P3: CB P3

Inflow Area = 0.197 ac, 84.33% Impervious, Inflow Depth > 5.78" for 100-YR event
Inflow = 1.22 cfs @ 12.11 hrs, Volume= 0.095 af
Outflow = 1.22 cfs @ 12.11 hrs, Volume= 0.095 af, Atten= 0%, Lag= 0.0 min
Primary = 1.22 cfs @ 12.11 hrs, Volume= 0.095 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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Page 147

Peak Elev= 267.36' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	266.70'	12.0" Round 12" Culvert L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 266.70' / 266.60' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.19 cfs @ 12.11 hrs HW=267.35' TW=266.60' (Dynamic Tailwater)
↑**1=12" Culvert** (Barrel Controls 1.19 cfs @ 3.10 fps)

Summary for Pond CB P4: CB P4

Inflow Area = 0.803 ac, 47.68% Impervious, Inflow Depth > 5.11" for 100-YR event
Inflow = 4.04 cfs @ 12.17 hrs, Volume= 0.342 af
Outflow = 4.04 cfs @ 12.17 hrs, Volume= 0.342 af, Atten= 0%, Lag= 0.0 min
Primary = 4.04 cfs @ 12.17 hrs, Volume= 0.342 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 271.49' @ 12.21 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	267.90'	12.0" Round 12" Culvert L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 267.90' / 267.60' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=3.52 cfs @ 12.17 hrs HW=271.36' TW=270.49' (Dynamic Tailwater)
↑**1=12" Culvert** (Inlet Controls 3.52 cfs @ 4.48 fps)

Summary for Pond CB P5: CB P5

Inflow Area = 0.174 ac, 100.00% Impervious, Inflow Depth > 6.51" for 100-YR event
Inflow = 1.22 cfs @ 12.09 hrs, Volume= 0.094 af
Outflow = 1.22 cfs @ 12.09 hrs, Volume= 0.094 af, Atten= 0%, Lag= 0.0 min
Primary = 1.22 cfs @ 12.09 hrs, Volume= 0.094 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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Page 148

Peak Elev= 266.70' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	265.50'	12.0" Round Culvert L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 265.50' / 265.45' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.09 hrs HW=266.46' TW=266.58' (Dynamic Tailwater)

↑**1=Culvert** (Controls 0.00 cfs)

Summary for Pond CB P6: CB P6

Inflow Area = 0.326 ac, 78.95% Impervious, Inflow Depth > 5.88" for 100-YR event
Inflow = 2.04 cfs @ 12.11 hrs, Volume= 0.160 af
Outflow = 2.04 cfs @ 12.11 hrs, Volume= 0.160 af, Atten= 0%, Lag= 0.0 min
Primary = 2.04 cfs @ 12.11 hrs, Volume= 0.160 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 266.89' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	265.50'	12.0" Round Culvert L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 265.50' / 265.45' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.53 cfs @ 12.11 hrs HW=266.75' TW=266.59' (Dynamic Tailwater)

↑**1=Culvert** (Inlet Controls 1.53 cfs @ 1.95 fps)

Summary for Pond House Infiltration: House Infiltration

Inflow Area = 0.048 ac, 100.00% Impervious, Inflow Depth > 6.51" for 100-YR event
Inflow = 0.34 cfs @ 12.09 hrs, Volume= 0.026 af
Outflow = 0.01 cfs @ 8.75 hrs, Volume= 0.009 af, Atten= 98%, Lag= 0.0 min
Discarded = 0.01 cfs @ 8.75 hrs, Volume= 0.009 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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Page 149

Peak Elev= 273.01' @ 16.81 hrs Surf.Area= 330 sf Storage= 754 cf

Plug-Flow detention time= 165.0 min calculated for 0.009 af (36% of inflow)
Center-of-Mass det. time= 36.1 min (769.5 - 733.4)

Volume	Invert	Avail.Storage	Storage Description
#1	270.00'	373 cf	ADS_StormTech SC-740 x 8 Inside #2 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 2 rows
#2	269.00'	445 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 1,485 cf Overall - 373 cf Embedded = 1,112 cf x 40.0% Voids
		818 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
269.00	330	0	0
273.50	330	1,485	1,485

Device	Routing	Invert	Outlet Devices
#1	Discarded	269.00'	1.040 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.01 cfs @ 8.75 hrs HW=269.05' (Free Discharge)
↑ **1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Summary for Pond Post Existing Pond: Existing Pond

Inflow Area = 17.672 ac, 15.88% Impervious, Inflow Depth > 3.46" for 100-YR event
Inflow = 55.91 cfs @ 12.22 hrs, Volume= 5.103 af
Outflow = 60.66 cfs @ 12.27 hrs, Volume= 3.820 af, Atten= 0%, Lag= 3.0 min
Primary = 60.66 cfs @ 12.27 hrs, Volume= 3.820 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 263.79' @ 12.27 hrs Surf.Area= 54,224 sf Storage= 64,223 cf

Plug-Flow detention time= 102.2 min calculated for 3.820 af (75% of inflow)

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Page 150

Center-of-Mass det. time= 41.3 min (843.2 - 801.9)

Volume	Invert	Avail.Storage	Storage Description
#1	262.00'	64,223 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
262.00	31,406	0	0
263.50	54,224	64,223	64,223

Device	Routing	Invert	Outlet Devices
#1	Primary	263.30'	70.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=53.86 cfs @ 12.27 hrs HW=263.75' TW=0.00' (Dynamic Tailwater)


1=Broad-Crested Rectangular Weir(Weir Controls 53.86 cfs @ 1.71 fps)
Summary for Pond Stormceptor 1: Stormceptor 1

Inflow Area = 1.771 ac, 21.36% Impervious, Inflow Depth > 2.39" for 100-YR event
 Inflow = 4.47 cfs @ 12.20 hrs, Volume= 0.352 af
 Outflow = 4.47 cfs @ 12.20 hrs, Volume= 0.352 af, Atten= 0%, Lag= 0.0 min
 Primary = 4.47 cfs @ 12.20 hrs, Volume= 0.352 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 267.81' @ 12.20 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	265.20'	12.0" Round 12" Culvert L= 80.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 265.20' / 264.80' S= 0.0050 ' / ' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=4.45 cfs @ 12.20 hrs HW=267.80' TW=265.51' (Dynamic Tailwater)

1=12" Culvert (Barrel Controls 4.45 cfs @ 5.66 fps)

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Page 151

Summary for Pond Stormceptor 2: Stormceptor 2

Inflow Area = 1.268 ac, 28.14% Impervious, Inflow Depth > 2.38" for 100-YR event
Inflow = 3.26 cfs @ 12.22 hrs, Volume= 0.251 af
Outflow = 3.26 cfs @ 12.22 hrs, Volume= 0.251 af, Atten= 0%, Lag= 0.0 min
Primary = 3.26 cfs @ 12.22 hrs, Volume= 0.251 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 266.99' @ 12.23 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	265.50'	12.0" Round 12" Culvert L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 265.50' / 265.00' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=3.14 cfs @ 12.22 hrs HW=266.98' TW=266.27' (Dynamic Tailwater)
↑**1=12" Culvert** (Outlet Controls 3.14 cfs @ 4.00 fps)

Summary for Pond Stormceptor 3: Stormceptor 3

Inflow Area = 1.557 ac, 34.31% Impervious, Inflow Depth > 4.45" for 100-YR event
Inflow = 5.43 cfs @ 12.22 hrs, Volume= 0.577 af
Outflow = 5.43 cfs @ 12.22 hrs, Volume= 0.577 af, Atten= 0%, Lag= 0.0 min
Primary = 5.43 cfs @ 12.22 hrs, Volume= 0.577 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 268.96' @ 12.22 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	266.40'	12.0" Round 12" Culvert L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 266.40' / 266.00' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=5.37 cfs @ 12.22 hrs HW=268.92' TW=266.52' (Dynamic Tailwater)
↑**1=12" Culvert** (Inlet Controls 5.37 cfs @ 6.84 fps)

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Page 152

Summary for Pond Stormceptor 4: Stormceptor 4

Inflow Area = 2.571 ac, 29.10% Impervious, Inflow Depth > 3.62" for 100-YR event
Inflow = 8.69 cfs @ 12.50 hrs, Volume= 0.776 af
Outflow = 8.69 cfs @ 12.50 hrs, Volume= 0.776 af, Atten= 0%, Lag= 0.0 min
Primary = 8.69 cfs @ 12.50 hrs, Volume= 0.776 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 272.69' @ 12.50 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	266.60'	12.0" Round 12" Culvert L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 266.60' / 266.00' S= 0.0150 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=8.69 cfs @ 12.50 hrs HW=272.69' TW=267.41' (Dynamic Tailwater)
↑**1=12" Culvert** (Inlet Controls 8.69 cfs @ 11.06 fps)

Summary for Pond STORMCEPTOR 5: STORMCEPTOR 5

Inflow Area = 0.500 ac, 86.27% Impervious, Inflow Depth > 6.10" for 100-YR event
Inflow = 3.23 cfs @ 12.10 hrs, Volume= 0.254 af
Outflow = 3.23 cfs @ 12.10 hrs, Volume= 0.254 af, Atten= 0%, Lag= 0.0 min
Primary = 3.23 cfs @ 12.10 hrs, Volume= 0.254 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 266.63' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	265.20'	12.0" Round Culvert L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 265.20' / 265.10' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=3.21 cfs @ 12.10 hrs HW=266.63' TW=265.62' (Dynamic Tailwater)
↑**1=Culvert** (Barrel Controls 3.21 cfs @ 4.08 fps)

APPENDIX C

Stormwater Checklist and Sizing Calculations

Paradise Valley Club
Grove/Winch Street
Framingham, Massachusetts



Checklist for Stormwater Report

A. Introduction

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the [Massachusetts Stormwater Handbook](#). The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.¹ This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8²
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

¹ The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

² For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.



Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature

Signature and Date

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new and redevelopment?

- ☒ New development
- ☐ Redevelopment
- ☐ Mix of New Development and Redevelopment



Checklist for Stormwater Report

Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- ☒ No disturbance to any Wetland Resource Areas
- ☒ Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- ☐ Reduced Impervious Area (Redevelopment Only)
- ☒ Minimizing disturbance to existing trees and shrubs
- ☐ LID Site Design Credit Requested:
 - ☐ Credit 1
 - ☐ Credit 2
 - ☐ Credit 3
- ☒ Use of “country drainage” versus curb and gutter conveyance and pipe
- ☐ Bioretention Cells (includes Rain Gardens)
- ☐ Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- ☐ Treebox Filter
- ☒ Water Quality Swale
- ☐ Grass Channel
- ☐ Green Roof
- ☒ Other (describe): Infiltration basins

Standard 1: No New Untreated Discharges

- ☒ No new untreated discharges
- ☒ Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- ☒ Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.



Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

- ☐ Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.
- ☐ Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.
- ☒ Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

- ☒ Soil Analysis provided.
- ☒ Required Recharge Volume calculation provided.
- ☒ Required Recharge volume reduced through use of the LID site Design Credits.
- ☒ Sizing the infiltration, BMPs is based on the following method: Check the method used.
 - ☒ Static
 - ☐ Simple Dynamic
 - ☐ Dynamic Field¹
- ☐ Runoff from all impervious areas at the site discharging to the infiltration BMP.
- ☒ Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.
- ☒ Recharge BMPs have been sized to infiltrate the Required Recharge Volume.
- ☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:
 - ☐ Site is comprised solely of C and D soils and/or bedrock at the land surface
 - ☐ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
 - ☐ Solid Waste Landfill pursuant to 310 CMR 19.000
 - ☐ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.
- ☒ Calculations showing that the infiltration BMPs will drain in 72 hours are provided.
- ☐ Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

¹ 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.



Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

- ☐ The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.
- ☐ Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
 - Provisions for storing materials and waste products inside or under cover;
 - Vehicle washing controls;
 - Requirements for routine inspections and maintenance of stormwater BMPs;
 - Spill prevention and response plans;
 - Provisions for maintenance of lawns, gardens, and other landscaped areas;
 - Requirements for storage and use of fertilizers, herbicides, and pesticides;
 - Pet waste management provisions;
 - Provisions for operation and management of septic systems;
 - Provisions for solid waste management;
 - Snow disposal and plowing plans relative to Wetland Resource Areas;
 - Winter Road Salt and/or Sand Use and Storage restrictions;
 - Street sweeping schedules;
 - Provisions for prevention of illicit discharges to the stormwater management system;
 - Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
 - Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
 - List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.
- ☒ A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.
 - ☐ Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:
 - ☐ is within the Zone II or Interim Wellhead Protection Area
 - ☐ is near or to other critical areas
 - ☐ is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
 - ☐ involves runoff from land uses with higher potential pollutant loads.
 - ☐ The Required Water Quality Volume is reduced through use of the LID site Design Credits.
 - ☒ Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.



Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

- ☐ The BMP is sized (and calculations provided) based on:
 - ☒ The ½" or 1" Water Quality Volume or
 - ☐ The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.
- ☒ The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.
- ☐ A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

- ☐ The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.
- ☐ The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted **prior to** the discharge of stormwater to the post-construction stormwater BMPs.
- ☐ The NPDES Multi-Sector General Permit does **not** cover the land use.
- ☐ LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.
- ☐ All exposure has been eliminated.
- ☐ All exposure has **not** been eliminated and all BMPs selected are on MassDEP LUHPPL list.
- ☐ The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

- ☐ The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.
- ☐ Critical areas and BMPs are identified in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

- ☐ The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:
 - ☐ Limited Project
 - ☐ Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
 - ☐ Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
 - ☐ Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
 - ☐ Bike Path and/or Foot Path
 - ☒ Redevelopment Project
 - ☐ Redevelopment portion of mix of new and redevelopment.
- ☐ Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.
- ☐ The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
 - Construction Period Operation and Maintenance Plan;
 - Names of Persons or Entity Responsible for Plan Compliance;
 - Construction Period Pollution Prevention Measures;
 - Erosion and Sedimentation Control Plan Drawings;
 - Detail drawings and specifications for erosion control BMPs, including sizing calculations;
 - Vegetation Planning;
 - Site Development Plan;
 - Construction Sequencing Plan;
 - Sequencing of Erosion and Sedimentation Controls;
 - Operation and Maintenance of Erosion and Sedimentation Controls;
 - Inspection Schedule;
 - Maintenance Schedule;
 - Inspection and Maintenance Log Form.
- ☒ A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

- ☐ The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has **not** been included in the Stormwater Report but will be submitted **before** land disturbance begins.
- ☐ The project is **not** covered by a NPDES Construction General Permit.
- ☐ The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.
- ☒ The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

- ☒ The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:
 - ☒ Name of the stormwater management system owners;
 - ☒ Party responsible for operation and maintenance;
 - ☒ Schedule for implementation of routine and non-routine maintenance tasks;
 - ☒ Plan showing the location of all stormwater BMPs maintenance access areas;
 - ☐ Description and delineation of public safety features;
 - ☐ Estimated operation and maintenance budget; and
 - ☒ Operation and Maintenance Log Form.
- ☐ The responsible party is **not** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:
 - ☐ A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
 - ☐ A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

- ☐ The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;
- ☐ An Illicit Discharge Compliance Statement is attached;
- ☒ NO Illicit Discharge Compliance Statement is attached but will be submitted **prior to** the discharge of any stormwater to post-construction BMPs.

Project	13005	Paradise Valley Club
By	SPM	Basin Sizing Analysis
Date	9/22/2016	

[illegible]

Project	13005	Paradise Valley Club
By	SPM	Outlet Protection Sizing
Date	9/22/2016	

	Outlet	TW	Q (25-yr) (c Do(ft)		W1 (ft)	W2 (ft)	L(ft)	D50 (in)
CB P1	HW 1	0.1	0.53	1.25	3.75	7.45	9.26	0
Stormceptor 1	HW 2	0.1	1.54	1	3	6.54	8.85	1
Stormceptor 2	HW 3	0.1	1.45	1	3	6.50	8.74	1
Stormceptor 4	HW 3	0.5	5.38	1	3	10.10	17.76	1
Stormceptort 3	HW 5	0.1	2.99	1	3	7.24	10.59	3
Stormceptor 5	Ret Wall	0.1	2.38	1	3	6.94	9.86	2

*Presumed flow added based on existing off-site culvert flowing full

Formulas:

L $L = 1.8Q/Do^{1.5} + 7Do$ (when $TW < Do/2$)
 $L = 3Q/Do^{1.5} + 7Do$ (when $TW > Do/2$)

W1 $W = 3Do$

W2 $W = 3Do + L$ (when $TW < Do/2$)
 $W = 3Do + 0.4L$ (when $TW > Do/2$)

D50 $D50 = (.02Q^{1.3}) / (TW * Do)$

APPENDIX D

Pollution Prevention and
Stormwater Operation and Maintenance Plan

Paradise Valley Club
Grove/Winch Street
Framingham, Massachusetts

Pollution Prevention and Stormwater Operation and Maintenance Plan

For

Paradise Valley Club

Grove/Winch Street
Framingham, Massachusetts

Prepared by:



P.O. Box 1123
Newburyport, Massachusetts
(978) 312-3120

TABLE OF CONTENTS

1.0	INTRODUCTION.....	2
1.1	Roles and Responsibilities	2
2.0	POLLUTION PREVENTION.....	3
2.1	Equipment and Material Storage	3
2.2	Fuel Storage	3
2.3	Trash and Recyclables Collection.....	3
2.4	General Housekeeping	3
2.4.1	Trash and Debris Pickup	3
2.4.2	Sweeping.....	3
2.4.3	Spring and Fall Cleanup	4
2.5	Snow Plowing/Deicing	4
2.6	Landscape Maintenance.....	4
3.0	OPERATION AND MAINTENANCE	5
3.1	Catch Basins and Manholes	5
3.2	Stormwater Basins	5
3.3	Stormwater Treatment Units	5
3.4	Drain Outfalls	6
3.5	Record Keeping	6
3.6	Pet Waste	6
	INSPECTION AND MAINTENANCE SCHEDULE.....	8
	STORMWATER SYSTEM INSPECTION REPORT	9
	SITE-SPECIFIC STORMWATER DEVICES	9
	OVERALL SITE ISSUES	10
	CERTIFICATION STATEMENT:.....	11
	PRINT NAME:.....	11

APPENDICES:

Appendix A: Stormwater System O&M Inspection Report

1.0 INTRODUCTION

This Pollution Prevention and Operation and Maintenance (O&M) Plan has been prepared to implement procedures for the Paradise Valley Club (Project) which will minimize the potential for stormwater pollution and adverse impacts to resource areas subject to protection under the Massachusetts Wetlands Protections Act and Town of Framingham Wetlands Bylaw. This plan has been prepared to identify pollution prevention measures which are implemented as part of daily operations as well as O&M practices and procedures for stormwater Best Management Practices (BMPs).

The Project encompasses approximately 49.45 acres located between Grove Street and Winch Street in Framingham, Massachusetts. Wetlands resource areas associated with Baiting Brook include bordering vegetated wetlands (BVW), flood plain, and riverfront area. Additionally a man-made pond is located near the center of the site and BVW is found along the southern portion of the site. A plan showing the configuration of the Project stormwater systems and wetlands resource areas is provided on Sheets C-301 C-302, and C-303, Grading, Drainage & Erosion Control Plan. Inspection forms for Stormwater BMPs are enclosed in Appendix A.

1.1 Roles and Responsibilities

Owner

Paradise Valley Club (The Association)

Implementation

The Association

This plan shall be maintained by the Association and distributed to all residents, homeowners and outside contractors on an annual basis.

2.0 POLLUTION PREVENTION

The following section presents methods and procedures implemented by the Project as part of daily operations to minimize potential stormwater pollution. The procedures presented below have been developed to be practical to implement and sufficiently protective of nearby resource areas and the environment in general.

2.1 Equipment and Material Storage

Seasonal equipment is not to be permanently stored on-site. This equipment is generally limited to snow plows, lawn mowers and other miscellaneous equipment used by the personnel or companies conducting routine maintenance at the Project. Equipment used at the Project shall be generally clean and free of oil leaks and/or hazardous material which could potentially impact storm water quality.

Supplies such as sand, grass seed, fertilizers, and other materials which may be affected by weather or become airborne shall not be stored on site unless they are stored indoors.

2.2 Fuel Storage

There is no proposed fuel storage at the Project. Any fueling on site of maintenance equipment shall be conducted on paved areas at least 100' away from any resource area.

2.3 Trash and Recyclables Collection

Trash and recyclables will be picked up from the Project on a routine basis by an outside, licensed hauler. Trash and recyclable containers shall be kept under cover until they are brought by the homeowner to the curb side for pickup. Trash and recyclable containers may not be brought to the curbside more than 24 hours prior to the scheduled pickup.

2.4 General Housekeeping

Cleanup to remove accumulated trash and debris shall be performed on both an as-needed and scheduled basis. Routine cleanup activities include the following:

2.4.1 Trash and Debris Pickup

Trash and debris pickup shall be performed continuously as needed. Landscape and maintenance contractors shall be responsible for removing litter from the grounds. Residents and guests are prohibited from littering and are encouraged to pickup miscellaneous debris which they may encounter.

2.4.2 Sweeping

Sweeping of roadways and parking areas shall be performed on an annual basis during the early spring to remove salt and sand applied to these surfaces during the winter months. Should the need arise; selected areas of the Project may be swept more frequently. Sweeping will be performed by an outside contractor using suitable equipment. Recovered sweepings shall be disposed with other yard waste off-site in accordance with all applicable state, local and federal laws.

2.4.3 Spring and Fall Cleanup

Spring and fall cleanups shall be performed once per year following snow melt and tree defoliation, respectively. The majority of the spring and fall cleanup efforts shall focus on landscaped and lawn areas throughout the Project. Yard waste, including leaves, grass cuttings, nuisance vegetation, branches, stumps, rocks, etc., shall be disposed of off-site in accordance with all applicable state, local and federal laws.

2.5 Snow Plowing/Deicing

Snow and ice removal operations shall be performed on an as-needed basis. Snow from driveways, parking areas and walkways shall be plowed to the sides of the paved surfaces in accordance with customary snow plowing procedures. Snow shall be plowed away from wetlands resource areas. Snow stockpiles shall be located beyond wetlands buffer zones to the greatest extent practicable and in designated locations throughout the Project. Snow banks or piles may be removed from parking lots or other critical areas as needed. Snow which may be removed in this manner shall be disposed of off-site in accordance with applicable state, local and federal laws. Snow shall not be dumped or pushed into the pond or resource areas.

Deicing operations consist of applying sand or salt to walkways and other paved surfaces as needed for vehicle and pedestrian safety. Salt shall be applied at the minimal acceptable rates to provide safe vehicle and pedestrian safety.

2.6 Landscape Maintenance

Lawn and landscape areas shall be regularly maintained by a qualified landscape contractor. The landscape contractor shall be responsible for the maintenance and upkeep of the stormwater Basins including by not limited to replacement of dead or dying vegetation, removal of sediment and replacement of mulch.

The use of fertilizers, pesticides, and herbicides shall be minimized and in not case shall they be used within 100' of a wetland resource area.

3.0 OPERATION AND MAINTENANCE

An outside contractor shall inspect the stormwater management systems on a routine basis. Refer to the Grading, Drainage & Erosion Control Plans (Plans) for drainage structure locations. Inspection and maintenance shall be performed as follows:

3.1 Catch Basins and Manholes

Catch basins and manholes shall be inspected for accumulation of silt, sediment, or debris on a semi-annual basis. Cleaning will be performed at least once per year or more frequently if the sediment level rises 2 feet above the bottom of the sump. Removed sediment will be disposed off site by a qualified waste disposal contractor in accordance with local, state and federal regulations.

3.2 Stormwater Basins

Stormwater basins consist of sedimentation and infiltration basins. The basins will be inspected for sediment and debris accumulation on regular basis. Vegetation will also be inspected and mowed or replaced as needed. The maintenance schedule for stormwater basins is as follows:

Activity	Time of Year	Frequency
Inspect and Remove Trash	Year round	Biannually
Mulch	Spring	Biannually
Mow	Fall	Annually
Replace Dead Vegetation	Spring	Annually
Prune	Spring	Annually
Repair areas of erosion and revegetate	Spring	As necessary, but not less than once a year.
Remove sediment from grass swale	Spring	Annually
Inspect basin to ensure it is operating as designed	Summer	First few months after construction and semi-annually thereafter
Remove sediment from basin	Spring	As necessary

3.3 Stormwater Treatment Units

Stormwater Treatment Units shall be visually inspected annually and be cleaned out per the manufacturer's recommendations. Removed sediment will be disposed of off-site by a qualified waste disposal contractor in accordance with state and federal regulations.

3.4 Drain Outfalls

Drain outfalls shall be inspected annually. Any signs of erosion shall be promptly repaired. Accumulated sediment and/or debris shall be removed and disposed off-site. Any observed erosion shall be repaired with the placement of new rip-rap as needed.

3.5 Record Keeping

The Association shall complete the Stormwater System Inspection Report (Appendix A) as part of routine inspections. Copies of completed reports shall be kept for at least 5 years. Receipts of catch basin cleaning and other O&M activities which require contracted services shall also kept on file for a minimum of 5 years.

3.6 Pet Waste

Owners and guests will be responsible for clean up and disposal of pet waste on the site.

APPENDIX A

Stormwater System O&M Inspection Report

Paradise Valley Club

STORMWATER MANAGEMENT OPERATIONS AND MAINTENANCE PLAN

Paradise Valley Club
Grove Street
Framingham, Massachusetts

The following Stormwater Management Operation and Maintenance (O&M) Plan has been prepared to operate and maintain the stormwater management system for the Paradise Valley Club. The association shall be responsible for maintenance of all BMP's and drainage structures on-site.

Owner/Operator: The Paradise Valley Club

Inspection and Maintenance Schedule

Facility personnel will inspect the stormwater management system on a routine basis not less than once per month for the first 6 months of operation and annually thereafter. Refer to Sheets C-301, C-302 and C-303, Grading, Drainage & Erosion Control Plan, for drainage structure locations. Inspection and maintenance shall be performed as follows:

1. Catchbasins and Manholes shall be inspected for accumulation of silt, sediment, or debris on a semi-annual basis. Cleaning will be performed whenever the sediment level rises to within 1 foot of the invert elevation of the outlet pipe. Removed sediment will be disposed off-site by a qualified waste disposal contractor in accordance with state and federal regulations.
2. Stormwater Treatment Unit shall be visually inspected annually and be cleaned out per the manufacturer's recommendations. Removed sediment will be disposed of off-site by a qualified waste disposal contractor in accordance with state and federal regulations.
3. Landscaped Areas shall be inspected and maintained on a regular basis. Areas which may be subject to erosion will be stabilized and reseeded immediately. These operations will be performed as part of ongoing routine grounds maintenance operations.
4. Infiltration Areas shall be visually inspected monthly and voids in soil or stone shall be repaired. Vegetation shall be inspected monthly for disease or pest problems. If treatment is warranted, use the least toxic approach. Promptly replace any vegetation that is beyond treatment. Infiltration areas shall be mowed at least four times a year as required.
5. Drain outfalls shall be inspected annually. Any signs of erosion shall be promptly repaired. Accumulated sediment and/or debris shall be removed and disposed off-site. Any observed erosion shall be repaired with the placement of new rip-rap as needed.

Stormwater System Inspection Report

General Information			
Location: Paradise Valley Club			
Date of Inspection		Start/End Time	
Inspector's Name(s)			
Inspector's Title(s)			
Inspector's Contact Information			
Purpose of Inspection			
Weather Information			
Has it rained since the last inspection? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Weather at time of this inspection?			

Site-Specific Stormwater Devices

	Description	Installed and Operating Properly?	Corrective Action Needed	Date for Corrective Action/Responsible Person
1	CB P1	<input type="checkbox"/> Yes <input type="checkbox"/> No		
2	CB P2	<input type="checkbox"/> Yes <input type="checkbox"/> No		
3	CB P3	<input type="checkbox"/> Yes <input type="checkbox"/> No		
4	CB P4	<input type="checkbox"/> Yes <input type="checkbox"/> No		
5	CB P5	<input type="checkbox"/> Yes <input type="checkbox"/> No		
6	Stormceptor 1	<input type="checkbox"/> Yes <input type="checkbox"/> No		
7	Stormceptor 2	<input type="checkbox"/> Yes <input type="checkbox"/> No		
8	Stormceptor 3	<input type="checkbox"/> Yes <input type="checkbox"/> No		
9	Stormceptor 4	<input type="checkbox"/> Yes <input type="checkbox"/> No		

	Description	Installed and Operating Properly?	Corrective Action Needed	Date for Corrective Action/Responsible Person
10	Stormceptor 5	<input type="checkbox"/> Yes <input type="checkbox"/> No		
11	Basin 1 Outlet	<input type="checkbox"/> Yes <input type="checkbox"/> No		
12	Basin 2 Outlet	<input type="checkbox"/> Yes <input type="checkbox"/> No		
13	Basin 3 Outlet	<input type="checkbox"/> Yes <input type="checkbox"/> No		
14	Basin 4 Outlet	<input type="checkbox"/> Yes <input type="checkbox"/> No		
15	Headwall 1	<input type="checkbox"/> Yes <input type="checkbox"/> No		
16	Headwall 2	<input type="checkbox"/> Yes <input type="checkbox"/> No		
17	Headwall 3	<input type="checkbox"/> Yes <input type="checkbox"/> No		
18	Headwall 4	<input type="checkbox"/> Yes <input type="checkbox"/> No		
19	Headwall 5	<input type="checkbox"/> Yes <input type="checkbox"/> No		
20	Headwall 6	<input type="checkbox"/> Yes <input type="checkbox"/> No		
21	Headwall 7	<input type="checkbox"/> Yes <input type="checkbox"/> No		
22	Wall Penetration	<input type="checkbox"/> Yes <input type="checkbox"/> No		
23	Other	<input type="checkbox"/> Yes <input type="checkbox"/> No		
24	Other	<input type="checkbox"/> Yes <input type="checkbox"/> No		
25	Other	<input type="checkbox"/> Yes <input type="checkbox"/> No		
26	Other	<input type="checkbox"/> Yes <input type="checkbox"/> No		

Overall Site Issues

	Description		Corrective Action	Date for Corrective Action/Responsible Person
1	Are all slopes properly stabilized?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
2	Are natural resource areas (e.g., streams, wetlands, etc.) being subjected to erosion?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
3	Are discharge points free of sediment deposits?	<input type="checkbox"/> Yes <input type="checkbox"/> No		

Certification Statement:

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

Print name: _____

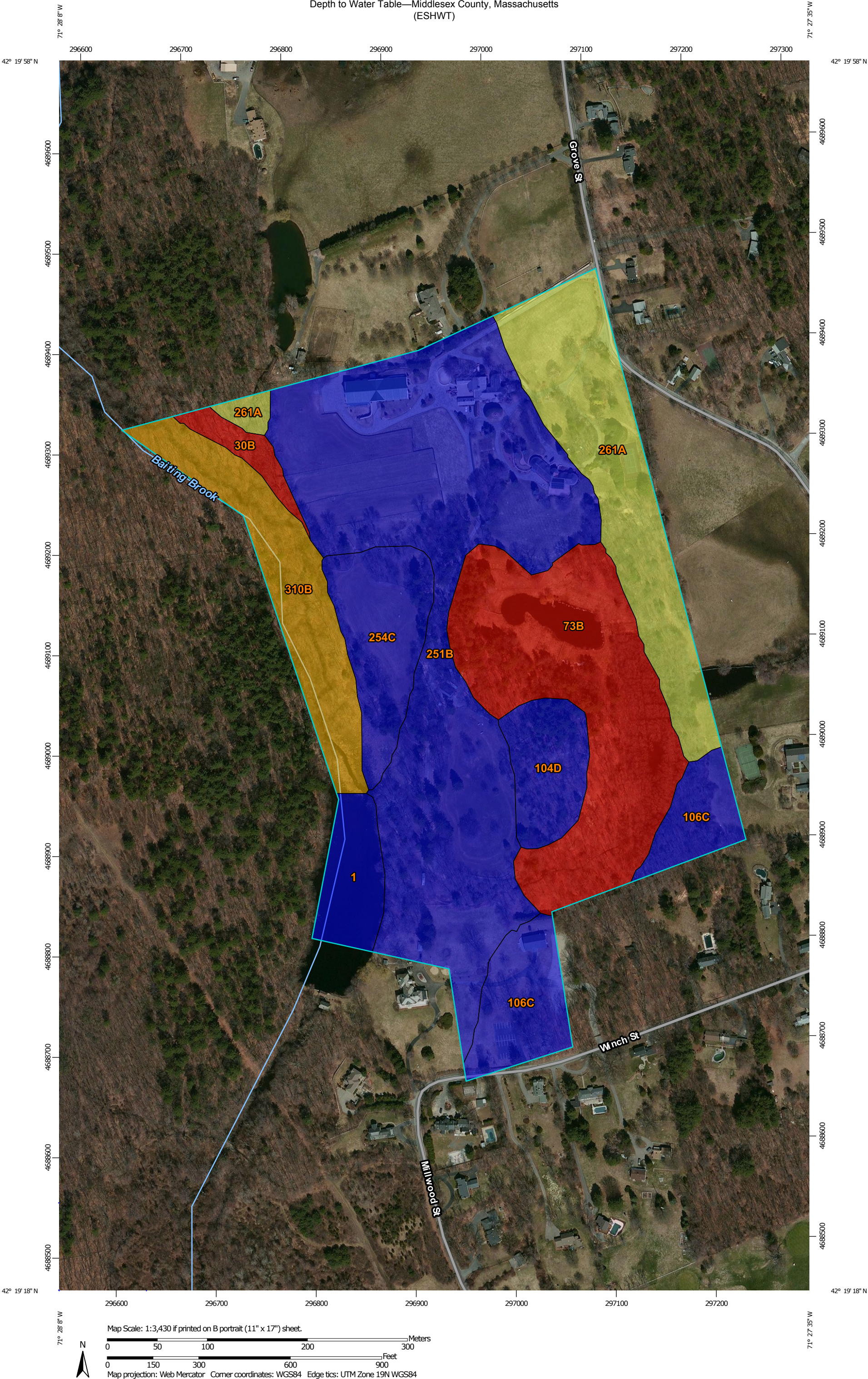
Signature: _____ Date: _____

APPENDIX E

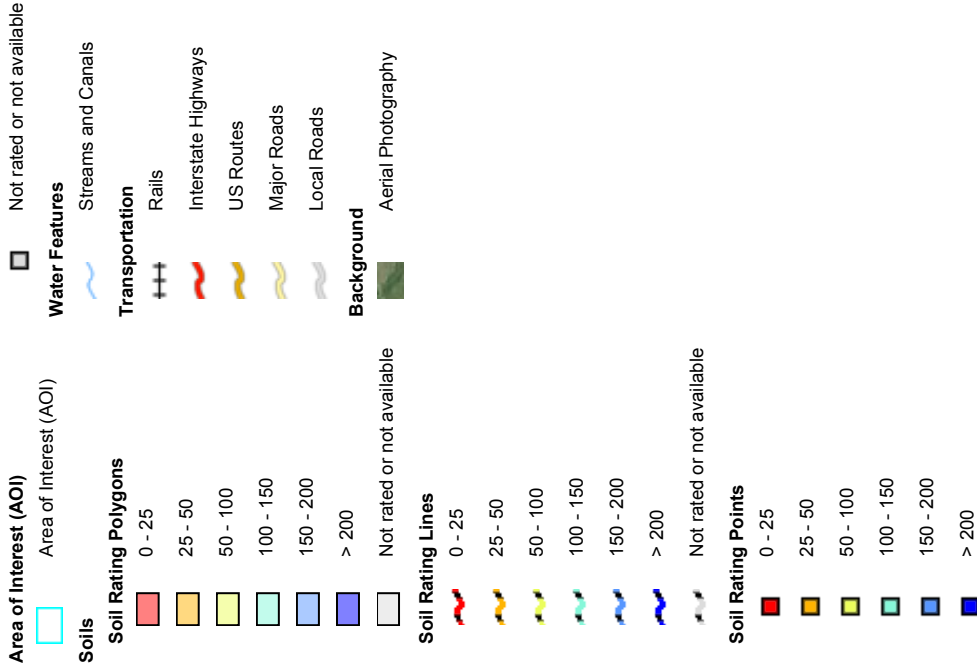
Soils Information

**Paradise Valley Club
Grove/Winch Street
Framingham, Massachusetts**

Depth to Water Table—Middlesex County, Massachusetts
(ESHWT)



MAP LEGEND



MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:25,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Middlesex County, Massachusetts
Survey Area Data: Version 13, Dec 17, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 30, 2011—May 1, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Depth to Water Table

Depth to Water Table— Summary by Map Unit — Middlesex County, Massachusetts (MA017)				
Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
1	Water	>200	2.1	3.3%
30B	Raynham silt loam, 0 to 5 percent slopes	23	0.9	1.4%
73B	Whitman fine sandy loam, 0 to 5 percent slopes, extremely stony	0	11.5	18.3%
104D	Hollis-Rock outcrop-Charlton complex, 15 to 25 percent slopes	>200	2.5	4.0%
106C	Narragansett-Hollis-Rock outcrop complex, 3 to 15 percent slopes	>200	4.6	7.3%
251B	Haven silt loam, 3 to 8 percent slopes	>200	23.5	37.5%
254C	Merrimac fine sandy loam, 8 to 15 percent slopes	>200	3.9	6.2%
261A	Tisbury silt loam, 0 to 3 percent slopes	61	8.6	13.7%
310B	Woodbridge fine sandy loam, 3 to 8 percent slopes	50	5.2	8.3%
Totals for Area of Interest			62.7	100.0%

Description

"Water table" refers to a saturated zone in the soil. It occurs during specified months. Estimates of the upper limit are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

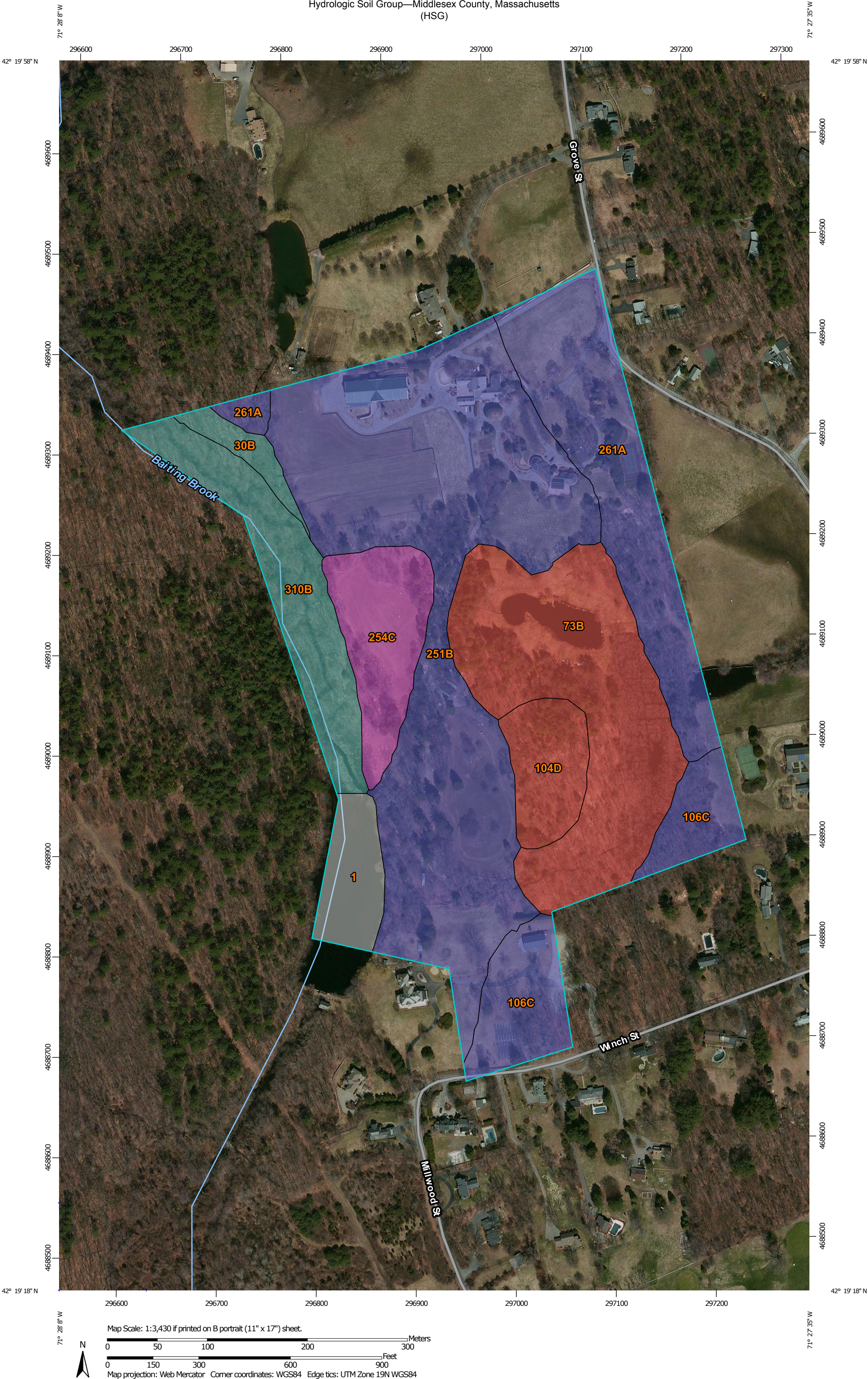
This attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Rating Options

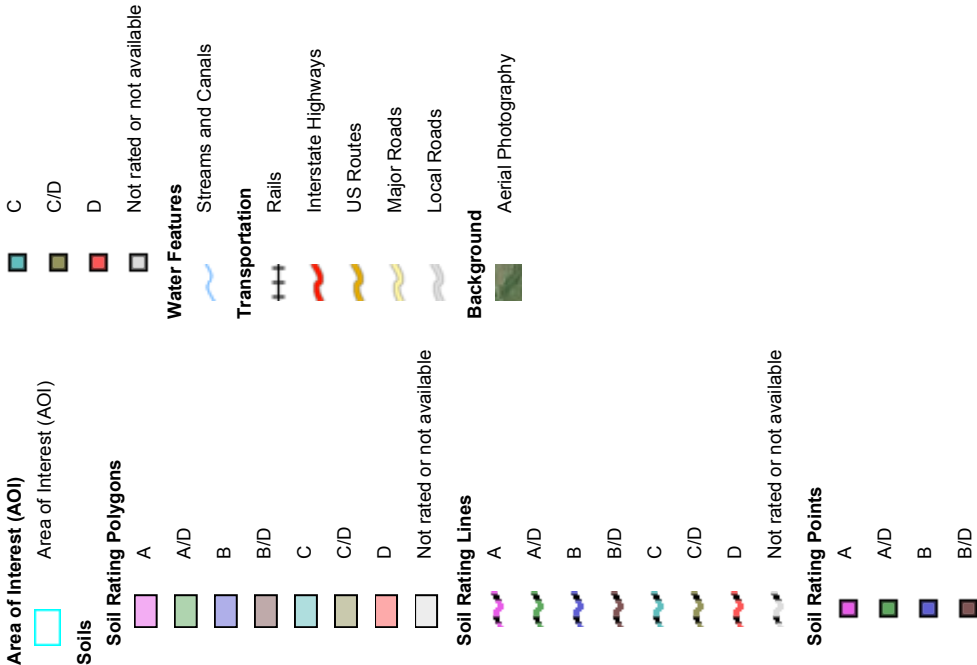
Units of Measure: centimeters

Aggregation Method: Dominant Component

Hydrologic Soil Group—Middlesex County, Massachusetts
(HSG)



MAP LEGEND



MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:25,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Middlesex County, Massachusetts
Survey Area Data: Version 13, Dec 17, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 30, 2011—May 1, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Middlesex County, Massachusetts (MA017)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
1	Water		2.1	3.3%
30B	Raynham silt loam, 0 to 5 percent slopes	C	0.9	1.4%
73B	Whitman fine sandy loam, 0 to 5 percent slopes, extremely stony	D	11.5	18.3%
104D	Hollis-Rock outcrop-Charlton complex, 15 to 25 percent slopes	D	2.5	4.0%
106C	Narragansett-Hollis-Rock outcrop complex, 3 to 15 percent slopes	B	4.6	7.3%
251B	Haven silt loam, 3 to 8 percent slopes	B	23.5	37.5%
254C	Merrimac fine sandy loam, 8 to 15 percent slopes	A	3.9	6.2%
261A	Tisbury silt loam, 0 to 3 percent slopes	B	8.6	13.7%
310B	Woodbridge fine sandy loam, 3 to 8 percent slopes	C	5.2	8.3%
Totals for Area of Interest			62.7	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

